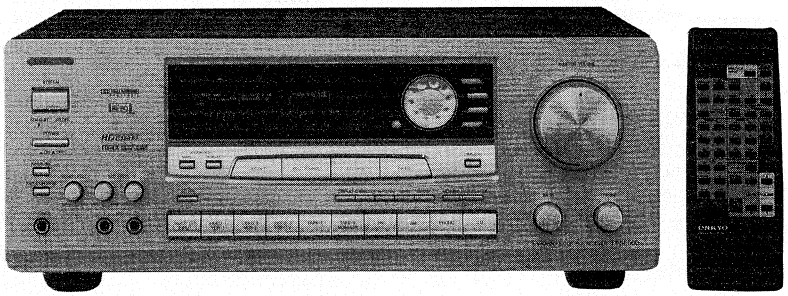
TX-SE600

Ref. No.3585

ONKYO® SERVICE MANUAL

A/V KARAOKE
RECEIVER
MODEL TX-SE600



Black and Golden models

BMPT	230V AC, 50Hz
BMWT, GMWT	220-230V/120V AC, 50/60Hz
BMGK	220V AC, 50Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

ONKYO®
AUDIO COMPONENTS

TABLE OF CONTENTS

Specifications 2
Service procedures 3
Adjustment procedures 4
  Tuner section 4
  Amplifier section 42
Microprocessor connection diagram 6
Microprocessor terminal descriptions 7
IC block diagrams and descriptions 8
Block diagrams 17
  Tuner section 17
  Amp. section 23
Printed circuit board parts list 18
  Volume section 29
  Tuner section 45
  Video section 54
Printed circuit board view 25
  Main circuit section 25
  Volume section 30
  Display and switch sections 34
  Power supply and amp. sections 37
  Power amplifier section 41
  Tuner section 45
  Video section 53
Schematic diagrams 27
  Main circuit section 27
  Volume section 31
  Display and switch sections 35
  Power supply and amp. sections 39
  Power amplifier section 43
  Tuner section 47
  Video section 53
Exploded view 49
Parts list 51
Packing view 55

SPECIFICATIONS

AMPLIFIER SECTION

Power Output

Stereo mode	
Front L/R channels:	2 × 100 watts at 6 ohms, 1 kHz (DIN)
Surround mode	
Front L/R and Center channels:	3 × 95 watts at 6 ohms, 1 kHz (DIN)
Surround L/R channels: (Rear only driven)	2 × 35 watts at 6 ohms, 1 kHz (DIN)
Remote mode	2 × 35 watts at 6 ohms, 1 kHz (DIN)
IM Distortion:	0.08% at rated power (Front)
Damping Factor:	60 at 8 ohms (Front)
Input Sensitivity/Impedance	
PHONO:	2.5 mV/50 kohms
CD/TAPE 1, 2/VIDEO-1, 2, 3:	200 mV/50 kohms
MULTI CHANNEL INPUT (FRONT L/R, SURROUND L/R, CENTER):	200 mV/50 kohms
MULTI CHANNEL INPUT (SUBWOOFER):	36 mV/50 kohms
Output Level/Impedance	
REC OUT:	200 mV/2.2 kohms
PRE OUT:	1 V/ 470 ohms
Phono Overload:	120 mV RMS at 1 kHz, 0.5% T.H.D.
Frequency Response:	20 Hz to 30 kHz, ±1 dB (Surround OFF)
RIAA Deviation:	20 Hz to 20 kHz, ±0.8 dB
Tone Control	
Bass:	±10 dB at 50 Hz
Treble:	±10 dB at 10 kHz
Signal-to-Noise Ratio (Surround OFF)	
Phono:	80 dB (IHF A, 5 mV input)
CD/Tape:	100 dB (IHF A)
Muting:	−∞ dB

VIDEO SECTION

Input Sensitivity and Impedance	
Video (Composite):	1 Vp-p/75 ohms
Output Level and Impedance	
Video (Composite):	1 Vp-p/75 ohms

TUNER SECTION

FM

Tuning Range:	87.5 — 108.0 MHz (50 kHz steps)
Usable Sensitivity	
Mono:	11.2 dBf, 1.0 µV (75 ohms)
Stereo:	17.2 dBf, 2.0 µV (75 ohms)
50 dB Quieting Sensitivity	
Mono:	17.2 dBf, 2.0 µV (75 ohms)
Stereo:	37.2 dBf, 20 µV (75 ohms)
Capture Ratio:	1.5 dB
Image Rejection Ratio	
U.S. & Canadian models:	40 dB
Other area models:	85 dB
IF Rejection Ratio:	90 dB
Signal-to-Noise Ratio	
Mono:	76 dB
Stereo:	70 dB
Alternate Channel Attenuation:	55 dB
Selectivity:	50 dB (DIN)
AM Suppression Ratio:	50 dB
Total Harmonic Distortion	
Mono:	0.1%
Stereo:	0.2%
Frequency Response:	30 Hz — 15 kHz, ±1.0 dB
Stereo Separation:	45 dB at 1 kHz 30 dB at 70 Hz — 10 kHz
Muting level:	17.2 dBf

AM

Tuning Range	522—1,611 kHz (9 kHz steps)
Worldwide models:	531—1,602 kHz (9 kHz steps), 530—1,710 kHz (10 kHz steps)
Usable Sensitivity:	30 µV
Image Rejection Ratio:	40 dB
IF Rejection Ratio:	40 dB
Signal-to-Noise Ratio:	40 dB
Total Harmonic Distortion:	0.7%

GENERAL

Power Supply	
	AC 220 V, 60 Hz AC 230 V, 50 Hz AC 220-230 V and 120 V switchable, 50/60 Hz
Power Consumption	310 W
Dimensions (W × H × D):	435 × 175 × 390 mm 17-1/8" × 6-7/8" × 15-3/8"
Weight:	
Other area models:	12.7 kg, 28 lbs.

REMOTE CONTROLLER RC-345S

Transmitter:	Infrared
Signal range:	Approx. 5 meters, 16 ft.
Power supply:	Two "AA" batteries (1.5 V × 2)

Specifications and features are subject to change without notice.

SERVICE PROCEDURES

1. Replacing the fuses

This symbol located near the fuse indicates that the fuse used is fast operating type. For continued protection against fire hazard, replace with same type fuse. For fuse rating refer to the marking adjacent to the symbol.

Ce symbole indique que le fusible utlise est a rapide. Pour une protection permanente, n'utiliser que des fusibles de meme type. Ce darnier est indique la qu le present symbol est appose.

CIRCUIT NO.	PART NO.	DESCRIPTION
F901	252198	⚠ 8A-UL. Primary fuse <W>
F902	252077	⚠ 4A-SE-EAK.Primary fuse

<W>: Wolrdwide model only

2. To Initialize the unit

This device employs a microprocessor to perform various functions and operations. If interference generated by an external power supply, radio wave, or other electrical source results in accident which causes the specified operations and functions to operate abnormally.

To perform a result, please follow the procedure below.

1. **Press and hold down the CD button, then press the POWER button.**
2. **After "clear" is displayed, the prest memory and each mode stored in the memory, such as surround, are initialized and will return to the factory settings.**

3. Safety-check out

(Only U.S.A. model)

After correcting the original service problem, perform the following safety check before releasing the set to the customer. Connect the insulating-resistance tester between the plug of power supply cord and the screw on the back panel.

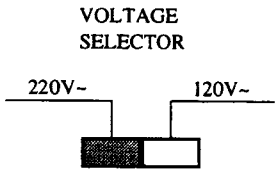
Specifications: 3.3 Mohm±10% at 500V.

4. Change of voltage

Worldwide models are equipment with a voltage selector to conform with local power supplies. This switch is located on the back panel.

Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on.

This switch is set to 220V at the factory. Voltage is changed by sliding the groove in the switch with the screwdriver to the right or left. Confirm that the switch has been moved all the way to the right or left before turning the power switch on.



5. Memory preservation

This unit does not require memory preservation batteries.

A built-in memory power back-up system preserves contents of the memory during power failures and even when the unit is unplugged.

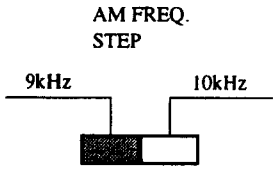
The unit must be plugged in and the power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory, the power switch must be turned on and off a few times each month the keep the back-up system operative.

The period of the time during which memory contents are preserved after power has last been turned off varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of 3 to 4 weeks (a minimum of 2 weeks) after the last time power has been turned off. This period is shorted when the unit is exposed to very high humidity or used in an area with an extremely humid climate.

6. Setting the tuning step frequency

Worldwide models are equipped with a step band selector switch. This switch is located on the back panel. This switch is set to 9 kHz at the factory, but may have to be reset to 10 kHz depending on the area where the unit is used.

	AM band step
Europe:	9 kHz
U.S.A.:	10 kHz



7. Changing the band step

With the exception of the worldwide models, a tuning step selector switch is not provided. When you change the band step, change the parts as shown below.

	To 10 kHz	To 9 kHz
R745	No connection	2.7 kohm
R746	10 kohm	1.5 kohm

ADJUSTMENT PROCEDURES

FM

Item	Step	Connection of instrument	FM SG output	Stereo modulator output	Tuning frequency	Output indicator	Adjustment point	Adjust for	Remarks
FM IF/RF	1	Fig.1	99.0MHz 1kHz 75kHz devi. 65dBf(60dB)	—	99.0MHz	DC voltmeter	L101	0±20mV	FM MUTE/MODE switch:ON/STEREO Repeat the steps 1 and 3 until no further adjustment is necessary.
	2					AC voltmeter	IFT on the front end	Maximum	
	3					Distortion analyzer	L102	Minimum	
Stereo Distortion		Fig.2	99.0MHz Ext. mod.65dBf(60dB)	Channel L or R 1kHz	99.0MHz	Distortion analyzer	IFT on the front end	Minimum	Don't turn more than ±180°
Stereo Separation	1	Fig.2	99.0MHz Ext. mod. 65dBf(60dB)	Channel L 1kHz	99.0MHz	Channel R AC voltmeter	R150	Minimum	Maximum and same separation
	2			Channel R 1kHz		Channel L AC voltmeter		Minimum	
Muting Level		Fig.3	99.0MHz 19.2dBf(14dB)	—	99.0MHz	TUNED indicator	R158	Light on	

AM

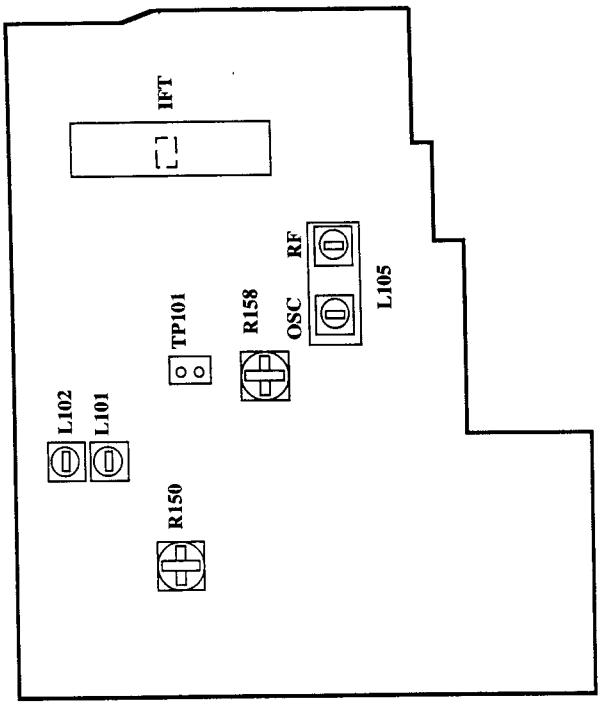
Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment point	Adjust for
1		522kHz or 531kHz	Digital DC voltmeter	OSC coil on RF block L105	1.4±0.2V
2	603kHz 400Hz 30% mod. 60dB/m	603kHz	AC voltmeter	RF coil on RF block L105	Maximum
3	999kHz 400Hz 30% mod. 60dB/m	999kHz	AC voltmeter	L106	Maximum

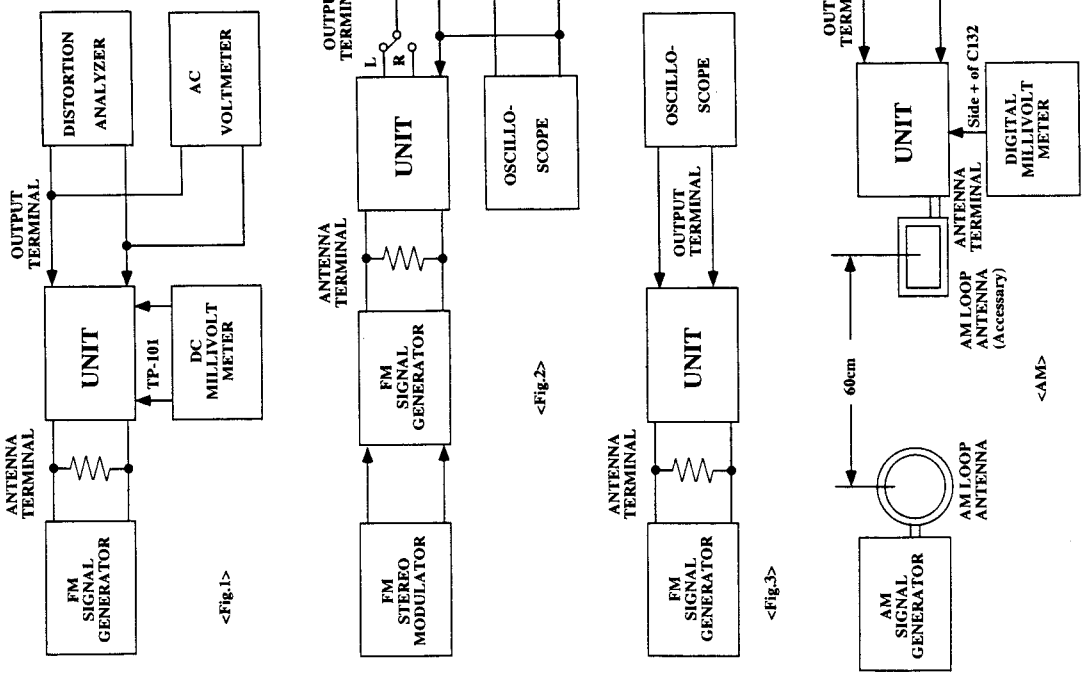
Reference Specification

FM tuned voltage:87.50MHz～108.00MHz
More than 1.3V～Less than 9V

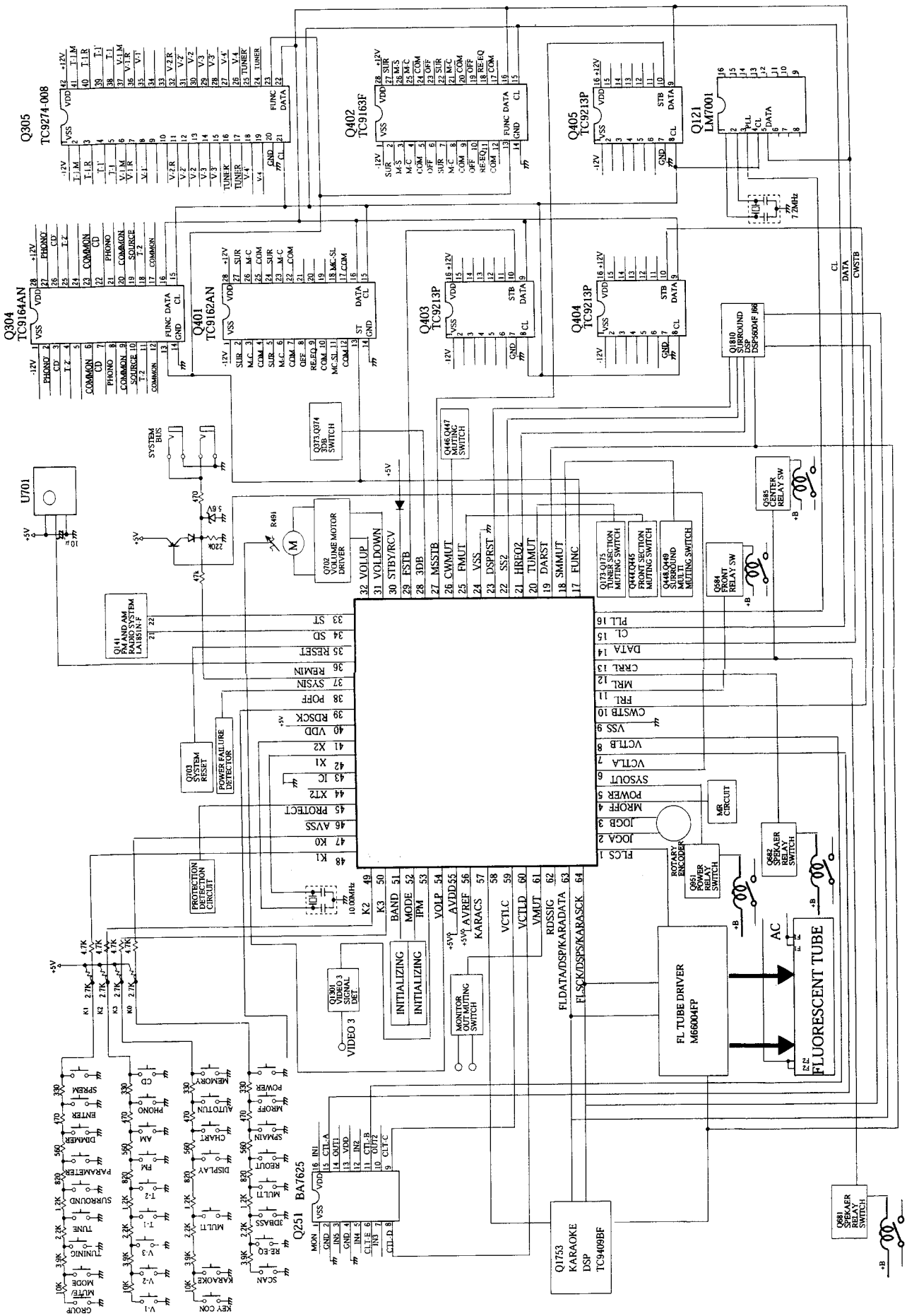
AM tuned voltage:522kHz～1611kHz
1.4±0.4～Less than 9.0V
(230V model)

AM tuned voltage:531kHz～1602kHz
1.4±0.4～Less than 9.0V
(Worldwide model)


IFT
L105
RF
OSC
R158
TP101
L102
L101
R150


FM SIGNAL GENERATOR
ANTENNA TERMINAL
UNIT
TP-101
DC MILLIVOLT METER
DISTORTION ANALYZER
AC VOLTMETER
OUTPUT TERMINAL
<Fig.1>
FM STEREO MODULATOR
FM SIGNAL GENERATOR
ANTENNA TERMINAL
UNIT
L
R
OUTPUT TERMINAL
OSCILLO-SCOPE
DISTORTION ANALYZER
AC VOLTMETER
<Fig.2>
FM SIGNAL GENERATOR
ANTENNA TERMINAL
UNIT
OUTPUT TERMINAL
OSCILLO-SCOPE
<Fig.3>
AM SIGNAL GENERATOR
AM LOOP ANTENNA
60cm
AM LOOP ANTENNA (Accessary)
ANTENNA TERMINAL
UNIT
Side + of C132
DIGITAL MILLIVOLT METER
OUTPUT TERMINAL
AC VOLTMETER or OSCILLOSCOPE
<AM>

MICROPROCESSOR CONNECTION DIAGRAM



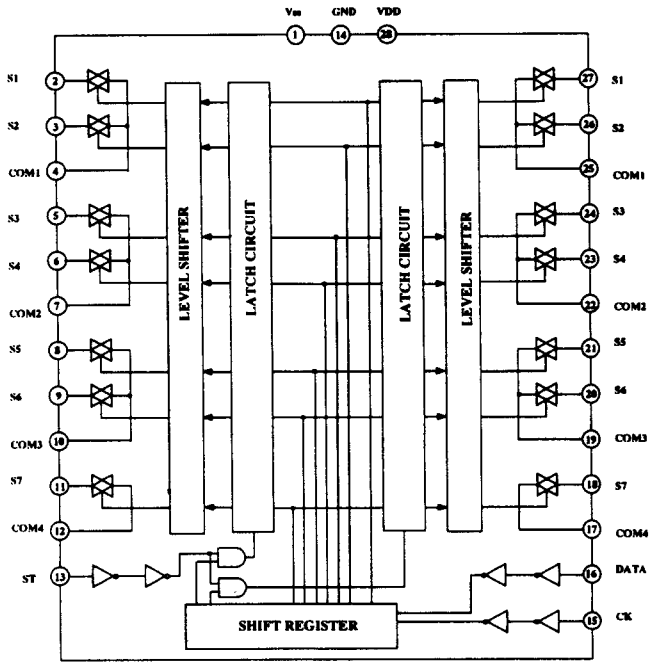
MICROPROCESSOR TERMINAL DESCRIPTIONS

Pin No.	Symbol	Description
1	FLCS	Connect to the terminal CS of FL tube driver.
2	JOGA	Input pin of Jog A
3	JOGB	Input pin of Jog B
4	MROFF	Multi-Room control output pin
5	POWER	Power source control output pin
6	SYSOUT	System code output pin
7	VCTLA	Video output control pin
8	VCTLB	Video output control pin
9	VSS	Ground pin
10	CWSTB	Connect to the terminal STAB of electro volume IC
11	FRL	Front speaker relay control output pin
12	MRL	Multi speaker relay control output pin
13	CRRL	Center and surround speaker relay control output pin
14	DATA	Data output pin to Function switch, PLL and electro volume Ics.
15	CL	Clock output pin to Function switch, PLL and electro volume Ics.
16	PLL	Chip enable output pin to PLL IC.
17	FUNC	Strobe output pin to Function switch Ics
18	MSMUT	Muting output pin for surround multi amplifier.
19	DARST	Reset output pin for D/A converter
20	TUMUT	Muting output pin for tuner circuit
21	HREQ	Request input pin from terminal HREQ of DSP IC.
22	SS	Output pin to connect the terminal SS of DSP IC.
23	DSPRST	Output pin to connect the terminal RESET of DSP IC.
24	VSS	Ground pin
25	FMUT	Muting output pin for amplifier of front channels
26	CWMUT	Muting output pin for amplifier of center and sub woofer channels
27	MSSTB	Strobe output pin to Electro volume
28	3DB	3-D BASS control output pin
29	FSTB	Strobe output pin to Electro volume
30	STBY/RECV	STAND-BY and RECEIVED indicator output pin
31 32	VOLDOWN VOLUP	Volume control output pin Operation / VOLUP / VOLDOWN STOP / H / H UP / H / L DOWN / L / H
33	STEREO	Stereo broadcast detection input pin

Pin No.	Symbol	Description
34	SD	Broadcast detection input pin
35	RESET	System reset input pin
36	REMIN	Input pin from remote control
37	SYSIN	System code input pin
38	POFF	Power failure detection input pin
39	RDSSCK	Clock input pin from RDS decoder
40	VDD	Power supply pin (+5V)
41	X2	Ceramic oscillator connection pins of main system clock
42	X1	Connect the 10MHz ceramic oscillator.
43	IC	Internal connection pin
44	XT2	Not used.
45	PROTECT	Protect circuit detection input pin
46	AVSS	Ground pin of A/D converter
47 48 49 50	K0 K1 K2 K3	Operation key connection pins
51	BAND	Initializing input pin for band and RDS function
52	MODE	Initializing input pin for operation mode
53	IPM	Detection input pin of Intelligent Power Management operation
54	VOLP	Position detection input pin of master volume
55	AVDD	Analog power supply pin of A/D converter
56	AVREF	Reference voltage input pin of A/D converter
57	KARACS	Chip select output pin to Karaoke IC
58	NC	Not connected
59	VCTLC	Video output control pin
60	VCTLD	Video output control pin
61	VMUT	Muting output pin of video
62	RDSSIG	RDS broadcast detection input pin
63	DSPSO KARADATA FLDATA	Input pin from terminal MOSI of DSP IC Data output pin to terminal DO of Karaoke IC Data output pin from terminal SDATA of FL tube
64	DSPSCK KARASCK FLSCK	Clock input pin from terminal SCLK of DSP IC Clock output pin to connect to terminal CK of Karaoke IC Clock output pin to connect to terminal SCK of FL tube driver

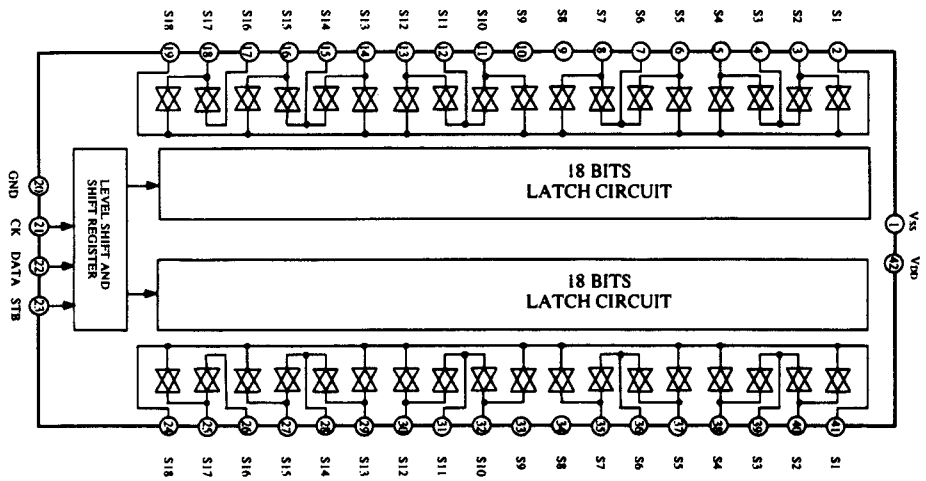
IC BLOCK DIAGRAMS AND DESCRIPTIONS

TC9162AN (Analog Switch)

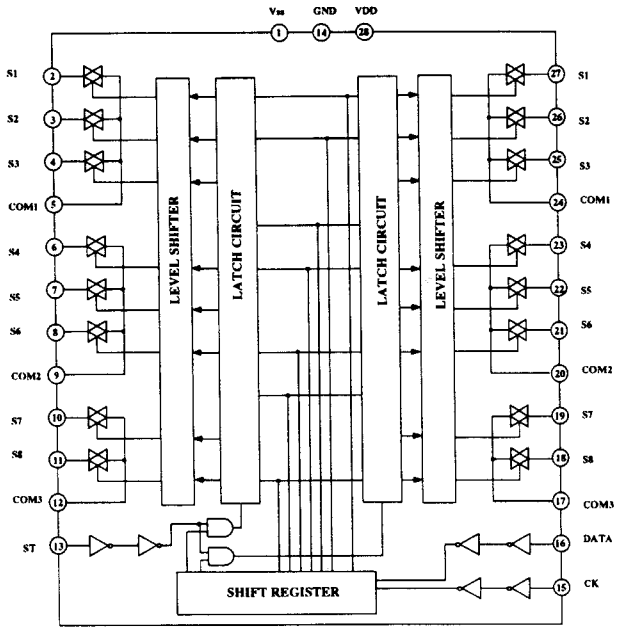


Pin No.	Symbol	Function
1	Vss	Power supply pin (-)
14	GND	Ground pin
28	VDD	Power supply pin (+)
2,3,5,6,8,9,11	S1 ~ S7	Switch input/output pins
27,26,24,23,21,20,18	S1 ~ S7	Switch input/output pins
4,7,10,12	COM1 ~ COM4	Common pins
25,22,19,17	COM1 ~ COM4	Common pins
13	ST	Strobe input pin for data interruption
15	CK	Clock input for data transfer
16	DATA	Serial data input pin for switch setting

TC9274N-008 (Analog Switch)

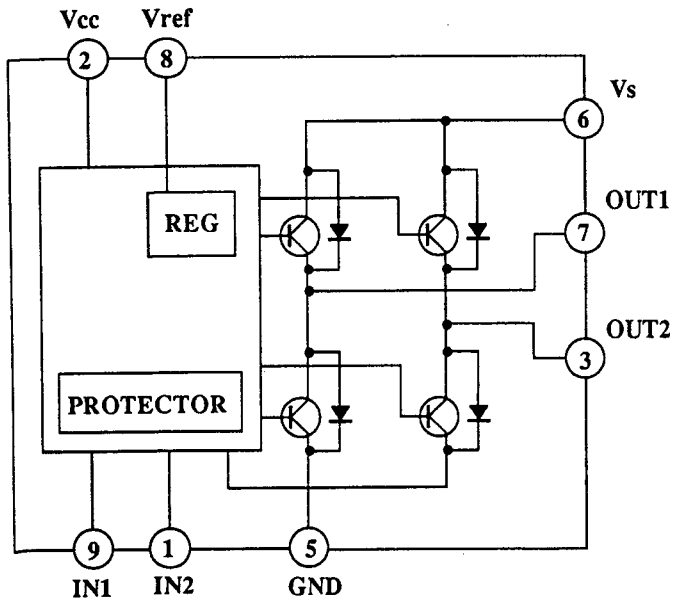


TC9163AN (Analog Switch)



Pin No.	Symbol	Function
1	Vss	Power supply pin (-)
14	GND	Ground pin
28	VDD	Power supply pin (+)
2,3,4,6,7,8,10,11	S1～S8	Switch input/output pins
27,26,25,24,22,21,19,18	S1～S8	Switch input/output pins
5,9,12	COM1～COM3	Common pins
24,20,17	COM1～COM3	Common pins
13	ST	Strobe input pin for data interruption
15	CK	Clock input for data transfer
16	DATA	Serial data input pin for switch setting

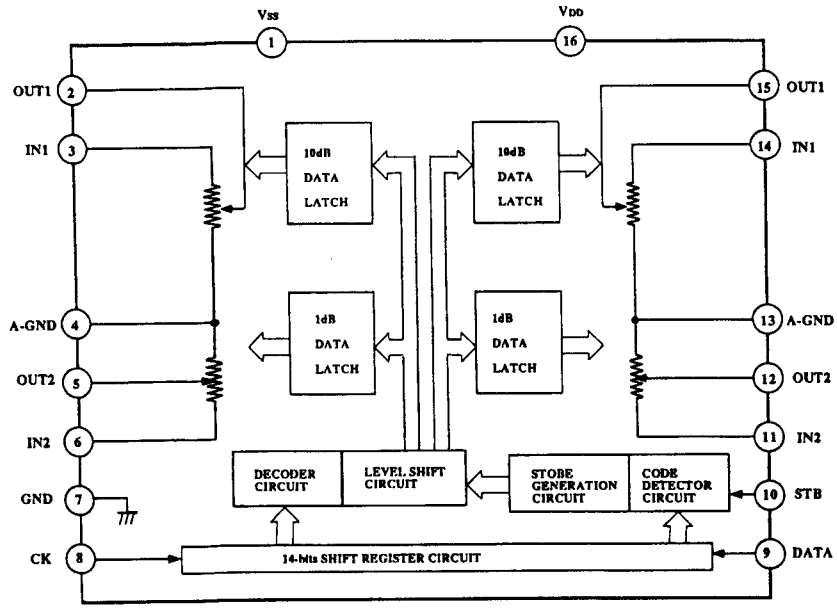
TA7291 (Volume Motor Driver)

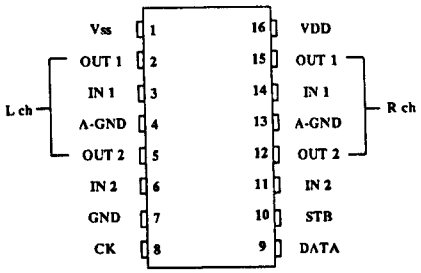


INPUT		OUTPUT		MODE
IN1	IN2	OUT1	OUT2	
0	0	∞	∞	STOP
1	0	H	L	CW/CCW
0	1	L	H	CCW/CW
1	1	L	L	BRAKE

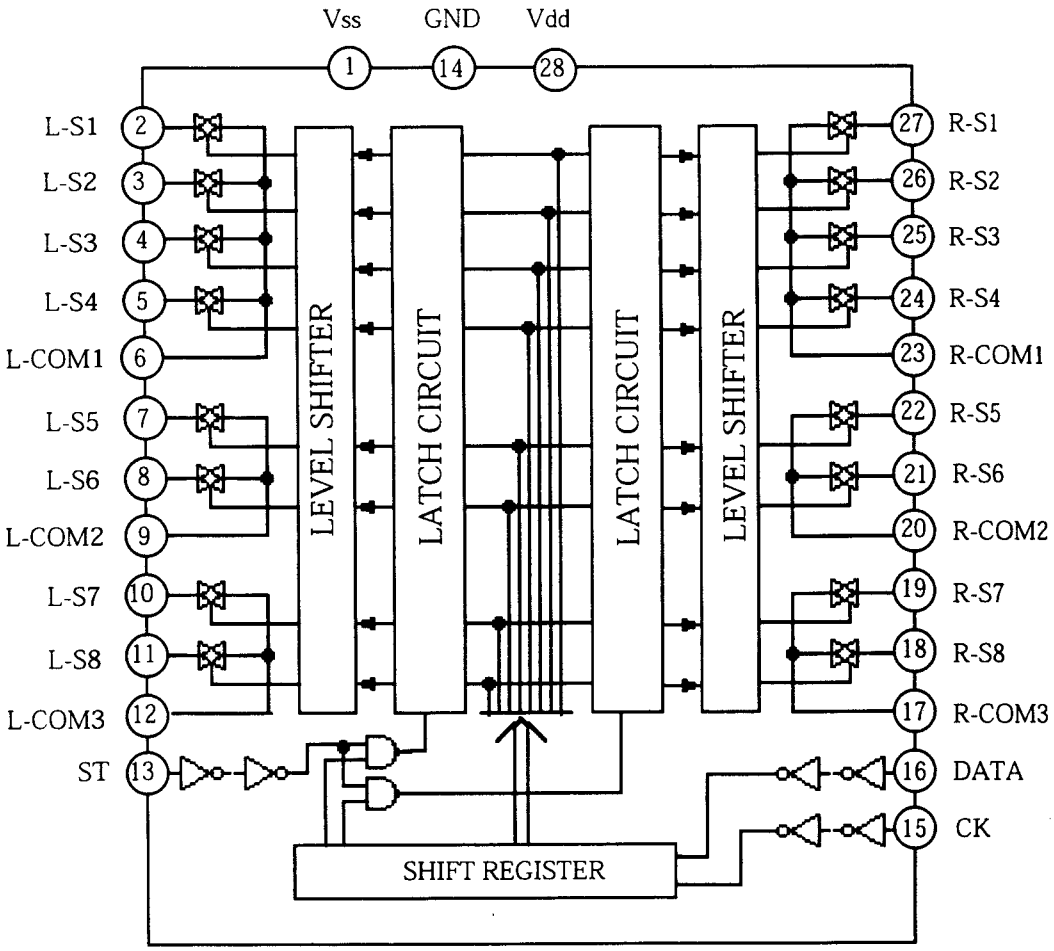
CCW:Counter-clockwise direction
CW:Clockwise direction

TC9213P (Electro Volume)

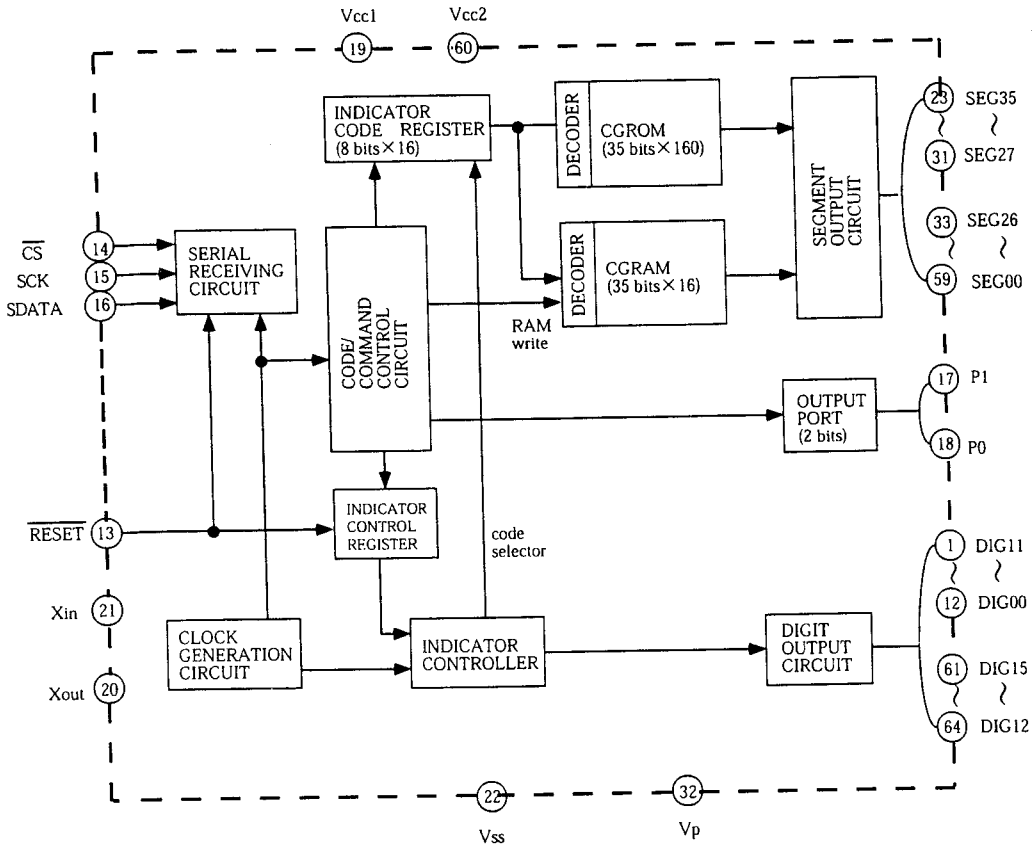




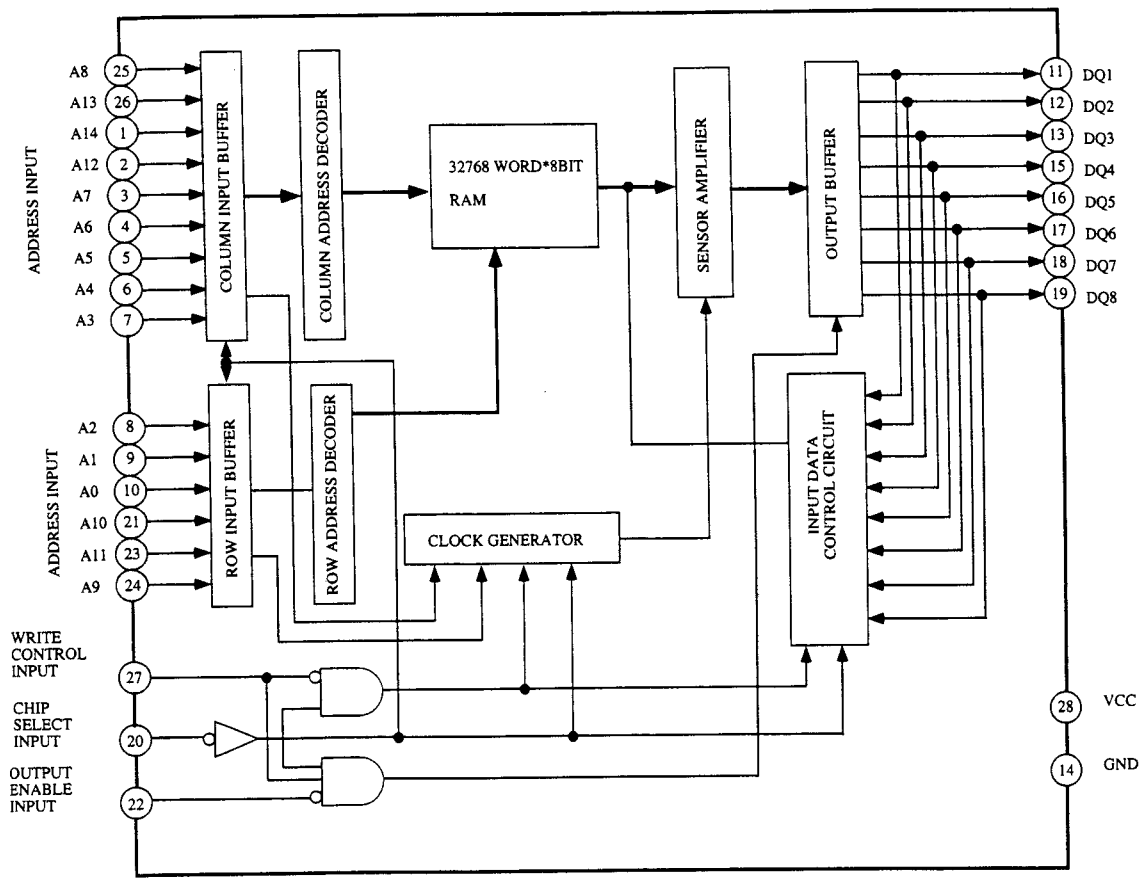
TC9164AN (Analog Switch)



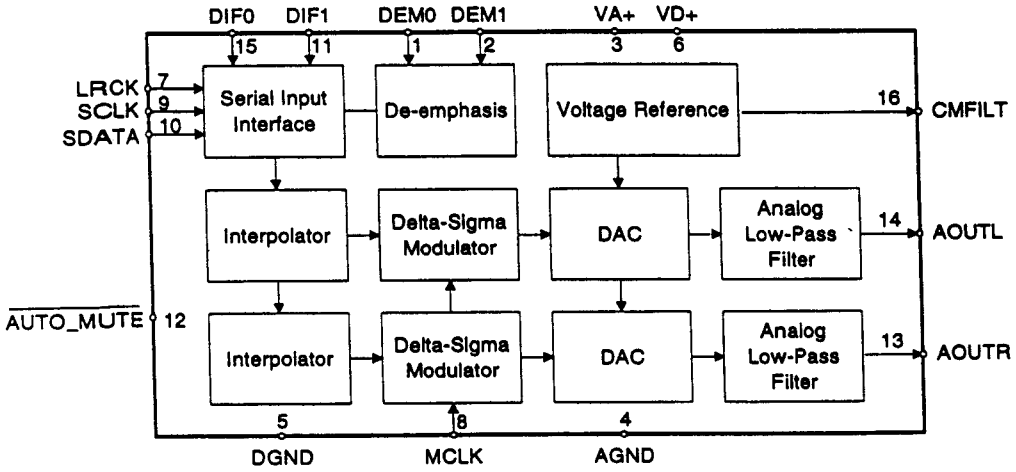
M6604FP (FL Tube Driver)



M5M5256FP-L(RAM)

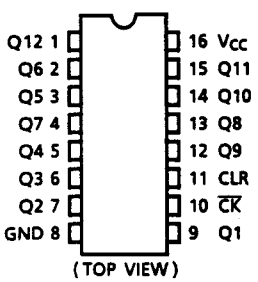


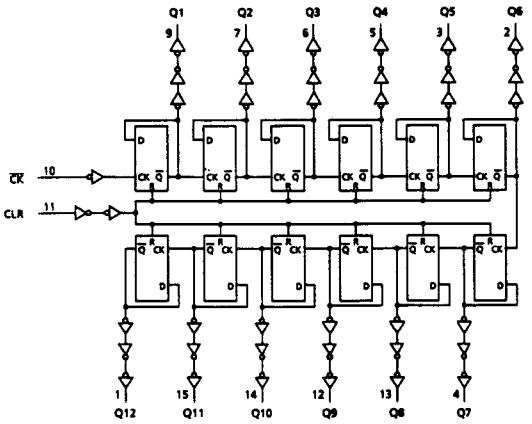
CS4327(D/A Converter)



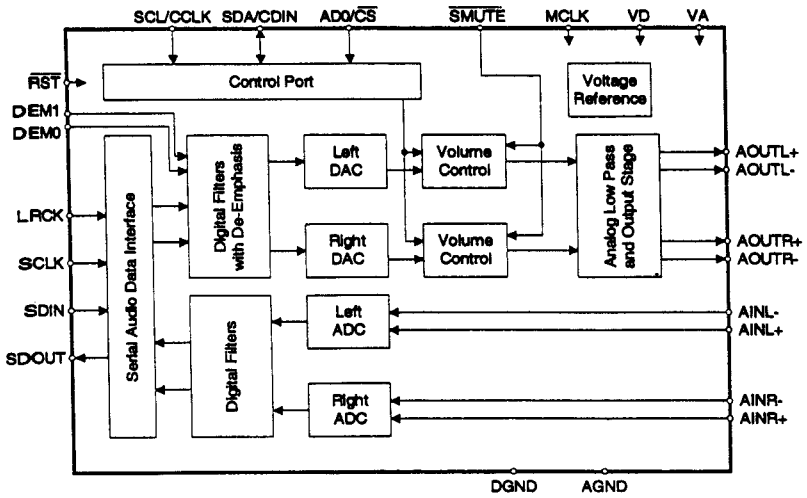
Pin No.	Symbol	Function
1 2	DEM0 DEM1	Controls the activation of the standard 50/15 μs de-emphasis filter for either 32, 44.1 or 48kHz sample rates.
3	VA+	Positive power supply for the analog section
4	AGND	Analog ground reference
5	DGND	Ground for the digital section
6	VD+	Positive power supply for the digital section
7	LRCK	This input determines which channel is currently being input on Serial Data Input pin. The format of LRCK is controlled by DIF0 and DIF1.
8	MCLK	The frequency must be either 256×,384× or 512× the input sample rate (Fs).
9	SCLK	Clocks the individual bits of the serial data in from SDATA pin. The edge used to latch SDATA is controlled by DIF0 and DIF1.
10	SDATA	Two's complement MSB-first serial data of either 16, 18 or 20 bits is input on this pin.
11 15	DIF1 DIF0	These pins select one of four formats for the incoming serial data stream. These pins These pins set the format of the SCLK and LRCK clocks with respect to SDADA.
12	AUTO-MUTE	When Auto-Mute is low the analog outputs are muted following an idle channel detection. Idle channel is defined as an input of static 1's or static 0's during 8192 consecutive LRCK cycles. Mute is canceled with the return of active channel input data.
13	AOUTR	Analog output connection for Right channel output
14	AOUTL	Analog output connection for Left channel output
16	CMFILT	Used to filter the common mode output voltage with a 1 μF capacitor.

TC74HC4040(12-Stage Binary Counter)



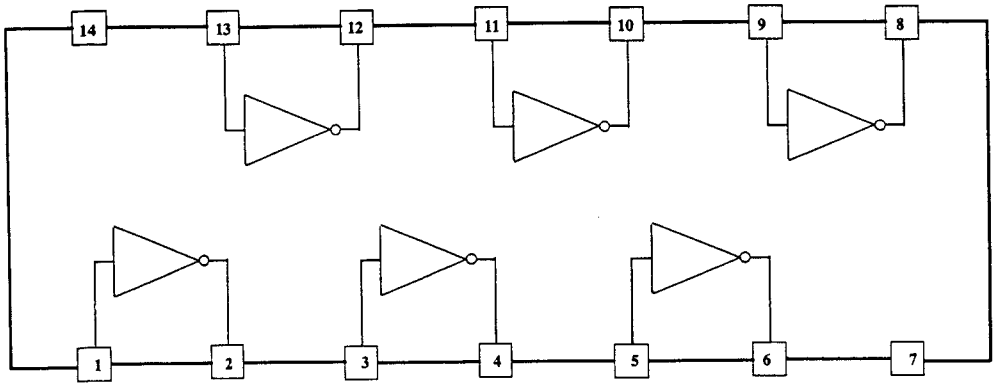


CS4222(A/D and D/A Converter)

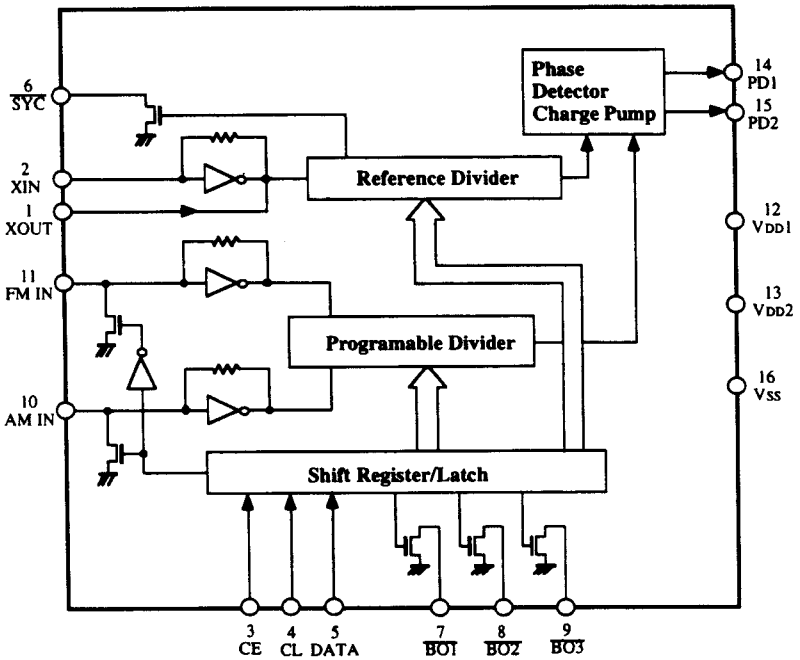


Pin No.	Symbol	Function
1	NC	No connect
2	SMUTE	SMUTE low activates a muting function for both the left and right channel D/A converter outputs.
3	MCLK	Clock source for the delta-sigma modulator sampling and digital filters.
4	LRCK	LRCK determines which channel, left or right, is to be input/output on SDIN/SDOUT.
5	SCLK	Clocks the individual bits of the serial data out from SDOUT and in form SDIN.
6	VD	Positive power supply for the digital section
7	DGND	Ground for the digital section
8	SDOUT	Two's complement MSB-first serial data of 20 bits is output on this pin. The data is clocked out via SLCK clock and the channel is determined by LRCK.
9	SDIN	Two's complement MSB-first serial data of either 16, 18 or 20 bits is input on this pin.
10	SCL/CCLK	SCL/CCLK is the serial control interface clock and is used to clock control bits into and out of the CS4222. This pin should be tied to DGND in stand-alone mode.
11	SDA/CDIN	SDA/CDIN is the input data line for the control port interface.
12	AD0/CS	Address bit/control port chip select pin
13 18	DEM0 DEM1	Controls the activation of the standard 50/15 μs de-emphasis filter.
14	NC	No connect
15	NC	No connect
16 17	AINR- AINR+	Analog input connections of the right channel differential inputs.
19 20	AINL- AINL+	Analog input connections of the left channel differential inputs.
21	VA	Analog positive power supply.
22	AGND	Analog ground reference.
23 24	AOUTR- AOUTR+	Analog output connections of the right channel differential inputs.
25 26	AOUTL- AOUTL+	Analog output connections of the left channel differential inputs.
27	RST	System reset input
28	NC	No connect

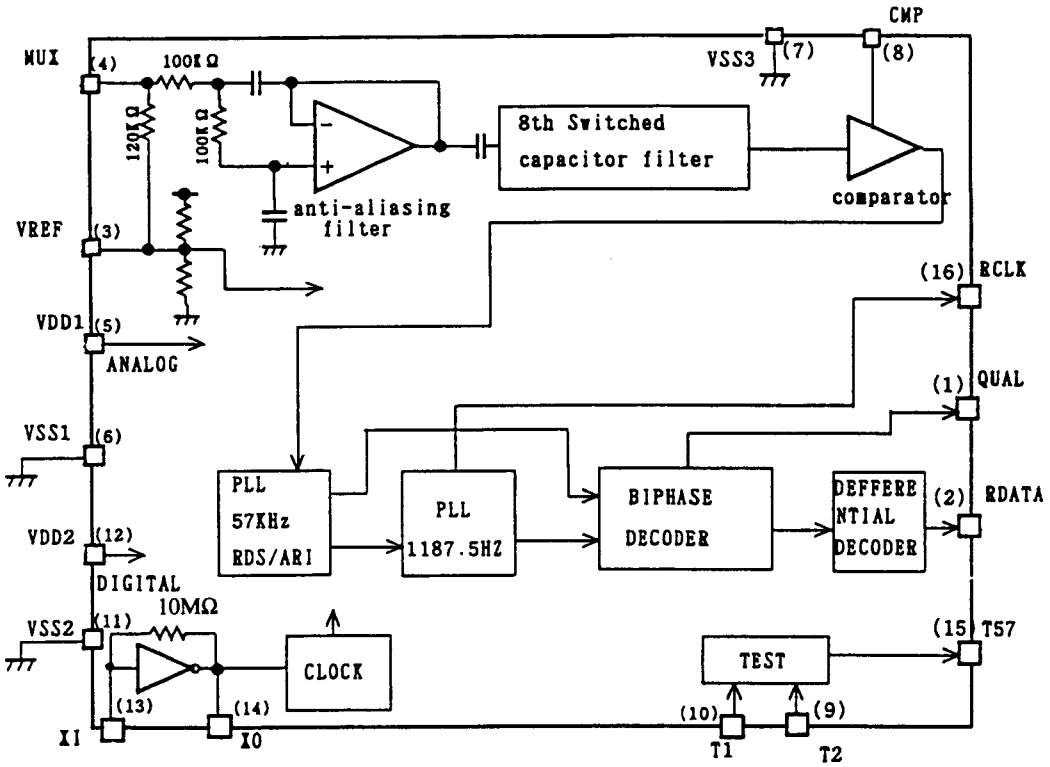
74HC04(Hex Inverter)



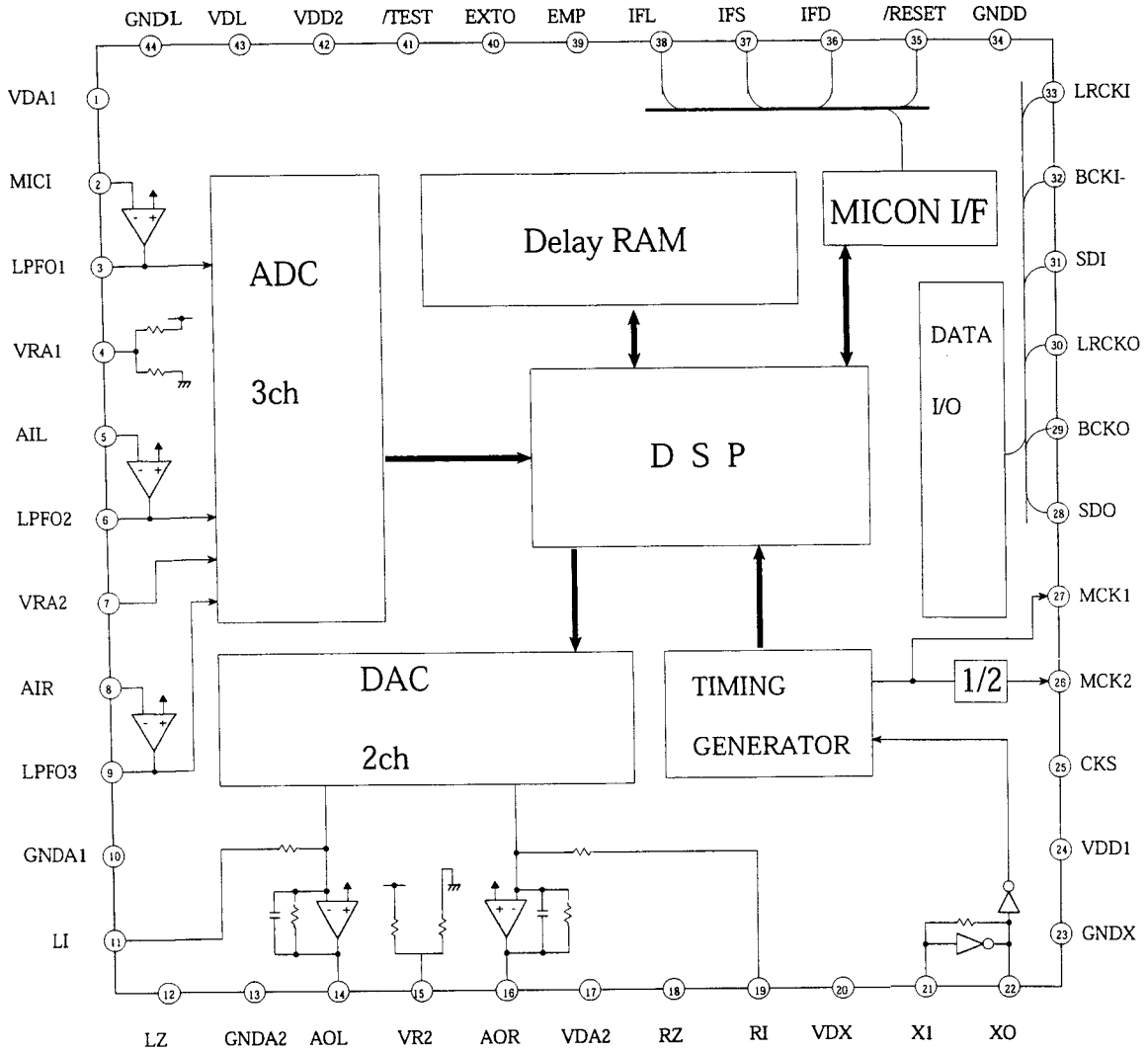
LM7001 (PLL Synthesizer and Controller)



BU1922(RDS Decoder)



TC9409BF (KARAOKE DSP)

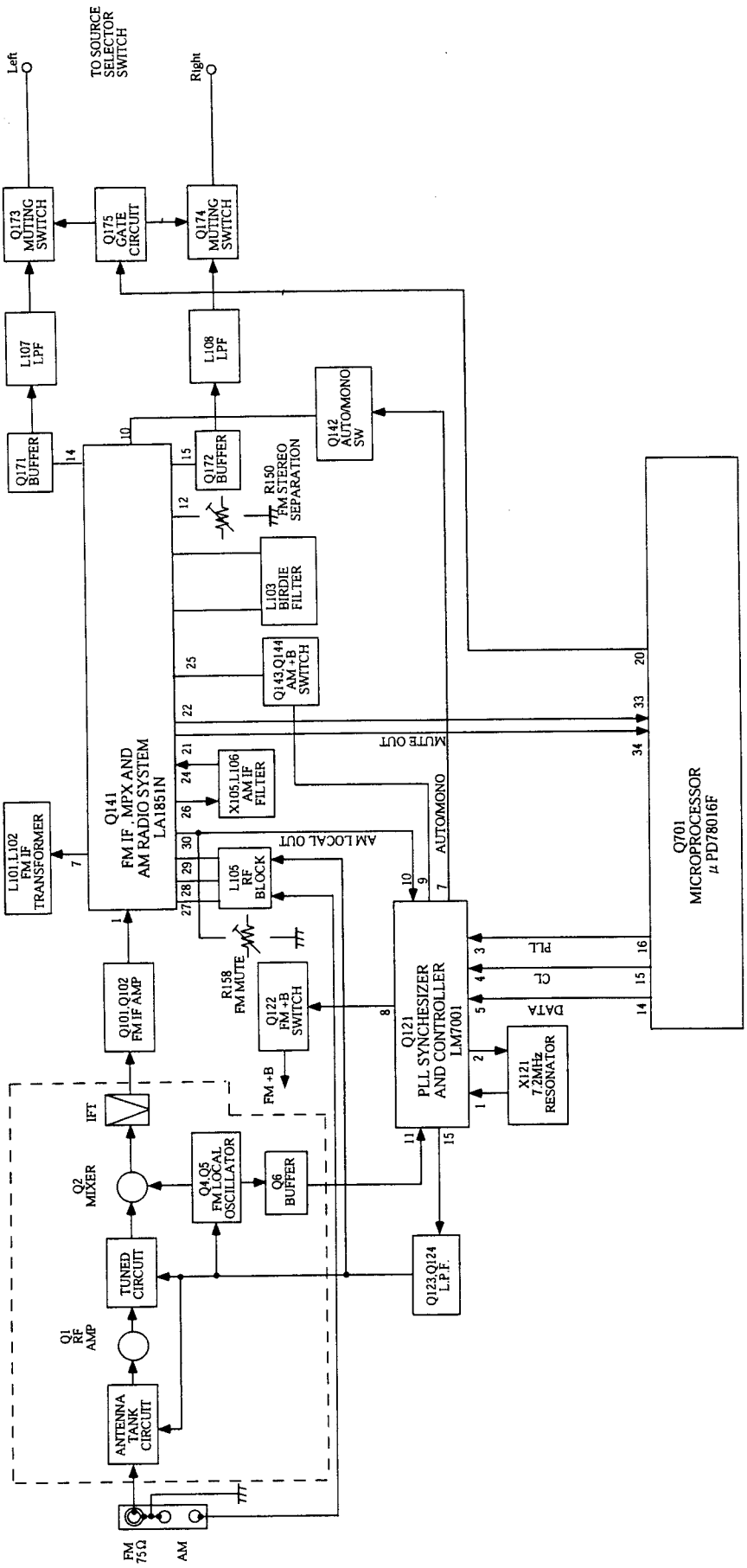


Pin No.	Terminal	I/O	Description	Pin No.	Terminal	I/O	Description
1	VDA1	-	ADC power supply	23	GNDX		Ground for oscillation
2	MICI	I	LPF input for mic. input	24	VDD1		Power supply pin for digital section
3	LPFO1	O	LPF output for mic. input	25	CKS	I	Master clock select
4	VRA1	-	Reference voltage of ADC	26	MCK2	O	1/2 divider output pin of oscillator clock
5	AIL	I	LPF input for Line input of left channel	27	MCK1	O	oscillator clock output
6	LPFO2	O	LPF output for Line input of left channel	28	SDO	O	digital audio data output pin
7	VRA2	-	Reference power supply for ADC	29	BCKO	O	Bit clock output pin
8	AIR	I	LPF input for Line input of right channel	30	LRCKO	O	Channel clock input
9	LPFO3	O	LPF output for Line input of right channel	31	SDI	I	Digital audio data input pin
10	GNDA1	-	Ground for ADC	32	BCKI	I	Bit clock input
11	LI	I	Analog additional input of left channel	33	LRCKI	I	Channel clock input
12	LZ	O	Digital input zero detector of left channel	34	GNDD	-	Ground for digital section
13	GNDA2	-	Ground of DAC	35	RESET	I	System reset
14	AOL	O	DAC output of left channel	36	IFD	I	I/F data input of microprocessor
15	VR2	-	Reference voltage of DAC	37	IFS	I	I/F data shift clock input of microprocessor
16	AOR	O	DAC output of right channel	38	IFL	I	I/F latch pulse input of microprocessor
17	VDA2	-	Power supply of DAC	39	EMP	I	De-emphasis setting
18	RZ	O	Digital input zero detector of right channel	40	EXTO	O	Extended output pin
19	RI	I	Analog additional input of right channel	41	TEST	I	Test mode setting
20	VDX	-	Power supply for oscillator	42	VDD2	-	Digital power supply
21	XI	I	Oscillator connection pin	43	VDL	-	Digital power supply for DRAM
22	XO	O	oscillator connection pin	44	GNDL	-	Digital ground for DRAM

MEMO

BLOCK DIAGRAM

TUNER SECTION



PRINTED CIRCUIT BOARD-PARTS LIST

MAIN CIRCUIT PC BOARD(NAAR-6095-4A/4B)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q1301,Q1371	22240293 or	NJM4558L-D or
Q303	22240247	BA15218N
Q301	22240191	NJM4565D-D
Q304	22240800	TC9164AN
Q305	22240829	TC9274N-008
Q371,Q372	22240293 or	NJM4558L-D or
	22240247	BA15218N
Q701	22241121	MPD78016FGC-532-ABB
Q702	22240239	TA7291S
Q922	222780565JRC	78M56(NJM78M56FA)
Q923	222780125	78M12HF
Q924	222790125	79M12HF
Q925	222780075	78M07HF
Q926	222790075	79M07HF
	Transistors	
Q1372	2211945	2SK246-GR
Q1391	2213510 or	DTA114ES or
	2214350	RN2202
Q1392	2212600	DTA124ES
Q1393	2213816 or	2SD1450-T or
	2212356	2SD1302-T
Q373,Q374	2211945	2SK246-GR
Q703	221282 or	DTC144ES or
	2213560	RN1204
Q704	2213510 or	DTA114ES or
	2214350	RN2202
Q927	2211255	2SC1815-GR
Q929	2211455	2SA1015-GR
Q928	2213640 or	DTC123JS or
	2214660	RN1205
	Diodes	
D1301,D1302	223163 or	1SS133 or
D1371	223205	1SS270A
D371,D372	223163 or	1SS133 or
D701-D704	223205	1SS270A
D705	224470562	MTZJ5.6B
D706	224470623	MTZJ6.2C
D707,D708	223163 or	1SS133 or
D926-D929	223205	1SS270A
D921	22380022F,	RBV402,
	22380271F or	D3SBA20 or
	22380285F	RS403M
D922-D925	22380260,	RL1N4003,
D930-D933	22380032 or	1SR139-100 or
D935	22380035	GP104003E
D934	224473604	MTZJ36D
	Coil	
L701	233454K220	NCH-1452 220K
	Oscillator	
X701	3010239	CST10.0MTW
	Capacitors	
C1301-C1304	354741009	10μF,16V,Elect.
C1306	374721034	0.01μF±5%,50V,Plastic
C1307,C1372	354741009	10μF,16V,Elect.
C1375,C1376	374721044	0.1μF±5%,50V,Plastic
C303,C304	354741009	10μF,16V,Elect.
C305,C306	354721019	100μF,6.3V,Elect.
C307,C308	374726824	6800pF±5%,50V,Plastic

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C309,C310	374721824	1800pF±5%,50V,Plastic
C311,C312	354741009	10μF,16V,Elect.
C341,C342	354741009	10μF,16V,Elect.
C363,C364	354742209	22μF,16V,Elect.
C373,C374	354741009	10μF,16V,Elect.
C379-C382	374721044	0.1μF±5%,50V,Plastic
C383,C384	374721534	0.015μF±5%,50V,Plastic
C385,C386	354741009	10μF,16V,Elect.
C702	375524744	0.47μF±5%,50V,Plastic
C703	3000076 or	EECS5R5T104 or
	3000078	DX-5R5L104
C704,C705	354721019	100μF,6.3V,Elect.
C706	354741009	10μF,16V,Elect.
C707	354780109	1μF,50V,Elect.
C708	354721019	100μF,6.3V,Elect.
C921,C922	3504310 or	4700μF,35V,Elect. or
	3504314	4700μF,35V,Elect.
C926	354754719	470μF,25V,Elect.
C928	354741009	10μF,16V,Elect.
C931	354782219	220μF,50V,Elect.
C932	354762219	220μF,35V,Elect.
C933	354754729	4700μF,25V,Elect.
C934,C949	354751029	1000μF,25V,Elect.
C937,C938	354741009	10μF,16V,Elect.
C941,C942	354741009	10μF,16V,Elect.
	Resistors	
R923,R929	443522204	22Ω±5%,1/2W, Metal oxide
R924	443523314	330Ω±5%,1/2W, Metal oxide
R925,R931	443621204	12Ω±5%,1W, Metal oxide
R932	443524704	47Ω±5%,1/2W, Metal oxide
R933,R936	453630684	6.8Ω±5%,1W, Metal
R934	443526804	68Ω±5%,1/2W, Metal oxide
R935	453530104	1Ω±5%,1/2W, Metal
	Sockets	
JL602a	25051090	NSCT-6P877
JL691a	25051107	NSCT-3P894
JL701a	25051847,	NSCT-40P1634,
	25050980 or	NSCT-40P767 or
	25051306	NSCT-40P1095
JL922a	25051112	NSCT-8P899
JL971a,JL972a	25051090	NSCT-6P877
	Terminals	
P301-P303	25045458 or	NPJ-6PDBL279 or
	25045300	NPJ-6PDBL159
P304	25045460 or	NPJ-4PDBL281 or
	25045303	NPJ-4PDBL162
	Plugs	
P102a	25055652	NPLG-14P608
JL391b	25055628	NPLG-7P590
P401a	25055704	NPLG-8P660
P402a,P403a	25055808	NPLG-19P764
	Heatsinks	
Q925a	27160227	RAD-076
Q922a	27160209	RAD-67

DISPLAY CIRCUIT PC BOARD (NADIS-6100-4A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	FL tube	
Q1704	212163	14-ST-19GK
	Remote sensor	
U1701	241305	GP1U281X
	IC	
Q1701	22240685R9	M66004FP
	Diodes	
D1701,D1702	223163 or	1SS133 or
D1704	223205	1SS270A
D1705,D1706	225291D	SEL4910D-D
D1703	224471803	MTZJ18C
	Capacitors	
C1705,C1711	375524744	0.47 μF±5%,50V,Plastic
C1709	353721019	100 μF,6.3V,Elect.
C1712	353781009	10 μF,50V,Elect.
C1717	353741009	10 μF,16V,Elect.
	Resistors	
R1741	49163103414	RM1/10IJ-10K*14,Array
R1809-R1811	5104413	N11RL10KB20Z, Variable
	Sockets	
JL701b	25051884,	NSCT-40P1671,
	25050946 or	NSCT-40P733 or
	25051344	NSCT-40P1133
JL801a,JL802a	25051093	NSCT-9P880
	Switches	
S1701-S1716	25035652	NPS-111-S604
S1718-S1724	25035652	NPS-111-S604
S1726-S1735	25035652	NPS-111-S604
S1737	25065528	EC16B24104
	Holders	
U1701a	27191042	Remote sensor
Q1704a	27191001	FL tube
	Plug	
P1753a	25055657	NPLG-8P613

DSP CIRCUIT PC BOARD(NADG-6125-4)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q1753	22241131R3	TC9409BF001
Q1801-Q1803	22240293 or	NJM4558L-D or
Q1805,Q1806	22240247	BA15218N
Q1804	22241128R9	CS4222-KS
Q1807	22241127R9	CS4327-KS
Q1808	222740046R9	74HCU04
Q1810	22240831R3 or	DSP56004FJ50 or
	22240940R3	DSP56004FJ66
Q1811	22241108R9,	M5M5256DFP-70L,
	22241207R9 or	M5M5256DFP-55L or
	22241208R9	LH52266CN-70LL
Q1812,Q1813	222780053	78L05
	Transistors	
Q1754,Q1755	2213631 or	RN1241-A or
	2213632	RN1241-B
Q1756	2213510	DTA114ES
	Diodes	
D1801-D1803	223205 or	1SS270A or
	223163	1SS133
	Oscillators	
X1801	3010278	CST12.2MTW040

CIRCUIT NO.	PART NO.	DESCRIPTION
	Coils	
L1751,L1752	233454K220	NCH-1452 220K
L1801-L1808	233454K220	NCH-1452 220K
L1809,L1810	233454M022	NCH-1452 022M
	Capacitors	
C1782,C1783	354721019	100 μF,6.3V,Elect.
C1784	375524744	0.47 μF±5%,50V,Plastic
C1786,C1787	354721019	100 μF,6.3V,Elect.
C1801-C1806	354741009	10 μF,16V,Elect.
C1811,C1812	374722224	2200pF±5%,50V,Plastic
C1813-C1816	374721015	100pF±10%,50V,Plastic
C1817-C1820	374721824	1800pF±5%,50V,Plastic
C1821-C1824	374722224	2200pF±5%,50V,Plastic
C1825-C1828	374722715	270pF±10%,50V,Plastic
C1829,C1830	354741009	10 μF,16V,Elect.
C1831,C1833	354721019	100 μF,6.3V,Elect.
C1832,C1858	375524744	0.47 μF±5%,50V,Plastic
C1835,C1836	354741009	10 μF,16V,Elect.
C1837,C1838	374721824	1800pF±5%,50V,Plastic
C1839,C1840	374721224	1200pF±5%,50V,Plastic
C1841,C1842	374721524	1500pF±5%,50V,Plastic
C1843,C1844	374721815	180pF±10%,50V,Plastic
C1845-C1848	374721015	100pF±10%,50V,Plastic
C1849,C1850	353741009	10 μF,16V,Elect.
C1851,C1852	353721019	100 μF,6.3V,Elect.
C1855,C1864	354721019	100 μF,6.3V,Elect.
C1859	374722234	0.022 μF±5%,50V,Plastic
C1861	375524744	0.47 μF±5%,50V,Plastic
C1867	354721019	100 μF,6.3V,Elect.
C1868,C1869	354741009	10 μF,16V,Elect.
	Plugs	
JL801b,JL802b	25055630	NPLG-9P592
P1753a,P1754a	25055657	NPLG-8P613
	Shield plate	
Q1801a	27150428	(PC)

MIC. TERMINAL PC BOARD(NAETC-6126-4)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q1751	222956	NJM2068D-D
Q1752	222410191	NJM4565D-D
	Capacitors	
C1751,C1752	374721015	100pF±10%,50V,Plastic
C1753,C1754	374722224	2200pF±5%,50V,Plastic
C1755,C1756	374721214	120pF±10%,50V,Plastic
C1757,C1758	354741009	10 μF,16V,Elect.
C1759	354742209	22 μF,16V,Elect.
C1760	374721024	1000pF±5%,50V,Plastic
C1761,C1762	354741009	10 μF,16V,Elect.
C1764	354742209	22 μF,16V,Elect.
C1765,C1766	354741009	10 μF,16V,Elect.
	Terminals	
P1751,P1752	25045510	YKB22-5011,Mic.
	Sockets	
P1753,P1754	25051044	NSCT-8P831

HEADPHONE TERMINAL PC BOARD(NAETC-6104-4A)

CIRCUIT NO.	PART NO.	DESCRIPTION
JL571a	25051107	NSCT-3P894,Socket
P571	25045255	YKB26-5009,Headphone terminal

CAUTION: Replacement of the transistor of mark *, if necessary, must be made from the same beta group (HFE) as the original type.

FRONT/CENTER POWER AMP. PC BOARD (NAAF-6108-4A/4B/4C)

CIRCUIT NO.	PART NO.		DESCRIPTION
	Transistors		
Q1501-Q1503	2211733 or		2SC1845-E or
Q1515	2211732		2SC1845-F
Q1504	2213284 or		2SC1740S-R or
	2212115		2SC2458-GR
Q1505,Q1506	2211354 or		2SA949-Y
Q1508	2211353		2SA949-O
Q1507,Q1509	2211634 or		2SC2229-Y
	2211633		2SC2229-O
Q1511	2203010		2SC5171
Q1512	2203000		2SA1930
Q1513	2201653,	*	2SC3856-O,
Q525,Q526	2201655,	*	2SC3856-P,
	2201654,	*	2SC3856-Y,
	2202842 or	*	2SC5242-R or
	2202843	*	2SC5242-O
Q1514	2201663,	*	2SA1492-O,
Q527,Q528	2201665,	*	2SA1492-P,
	2201664,	*	2SA1492-Y,
	2202832 or	*	2SA1962-R or
	2202833	*	2SA1962-O
Q1516	2212654 or		2SC3421-Y or
	2212653		2SC3421-O
Q501-Q506	2211733 or		2SC1845-E or
Q529,Q530	2211732		2SC1845-F
Q507,Q508	2213284 or		2SC1740S-R or
Q582,Q583	2212115		2SC2458-GR
Q509-Q512	2211354 or		2SA949-Y
Q515,Q516	2211353		2SA949-O
Q513,Q514	2211634 or		2SC2229-Y
Q517,Q518	2211633		2SC2229-O
Q521,Q522	2203010		2SC5171
Q523,Q524	2203000		2SA1930
Q531,Q532	2212654 or		2SC3421-Y or
	2212653		2SC3421-O
Q581	2211793 or		2SA992-E
	2211792		2SA992-F
Q584,Q585	2213650		DTD113ZS
	Diodes		
D581	224470512		MTZJ5.1B
D582,D583	223163 or		1SS133 or
	223205		1SS270A
D961	22380038,		RBV602,
	22380274 or		RS603M or
	22380070		D5SBA60
D962,D963	22380260,		RL1N4003,
	22380032 or		1SR139-100 or
	22380035		GP104003E
	Coils		
L1501	231176S		S-1.3C
L501,L502	231176S		S-1.3C
	Capacitors		
C1501	354742209		22 μ F,16V,Elect.
C1504	354742219		220 μ F,16V,Elect.
C1505	354744709		47 μ F,16V,Elect.
C1509,C1511	354781009		10 μ F,50V,Elect.
C1512	374721044		0.1 μ F±5%,50V,Plastic
C1515,C1516	354772209		22 μ F,63V,Elect.
C501,C502	354742209		22 μ F,16V,Elect.
C507,C508	354742219		220 μ F,16V,Elect.
C509,C510	354744709		47 μ F,16V,Elect.
C517,C518	354781009		10 μ F,50V,Elect.
C521,C522	354781009		10 μ F,50V,Elect.
C523,C524	374721044		0.1 μ F±5%,50V,Plastic
C529,C530	354772209		22 μ F,63V,Elect.
C582	354742219		220 μ F,16V,Elect.
C962,C963	374731044		0.1 μ F±5%,50V,Plastic
C964,C965	3504309 or		12000 μ F,63V or
	3504313		12000 μ F,63V,Elect.
C966,C967	354774719S		470 μ F,63V,Elect.
	Resistors		
R1512	443526804		68Ω ±5%,1/2W, Metal oxide
R1513,R1514	443525604		56Ω ±5%,1/2W, Metal oxide
R1515,R1516	443526804		68Ω ±5%,1/2W, Metal oxide
R1519	5210288		N06HR2.2KBE,Trimming
R1522	443521514		150Ω ±5%,1/2W, Metal oxide
R1523,R1524	453530224		2.2Ω ±5%,1/2W, Metal
R1525	4000132		RGC55 0.22,Thermistor
R1528	453630824		8.2Ω ±5%,1W, Metal
R523,R524	443526804		68Ω ±5%,1/2W, Metal oxide
R525-R528	443525604		56Ω ±5%,1/2W, Metal oxide
R529-R532	443526804		68Ω ±5%,1/2W, Metal oxide
R537,R538	5210288		N06HR2.2KBE,Trimming
R543,R544	443521514		150Ω ±5%,1/2W, Metal oxide
R545-R548	453530224		2.2Ω ±5%,1/2W, Metal
R549,R550	4000132		RGC55 0.22,Thermistor
R555,R556	453630824		8.2Ω ±5%,1W, Metal
R571,R572	443623914		390Ω ±5%,1W, Metal oxide
R962,R963	453530224		2.2Ω ±5%,1/2W, Metal
	Sockets		
JL501a,JL501b	25051109		NSCT-5P896
JL502a,JL502b	25051088		NSCT-4P875
JL503a,JL921b	25051110		NSCT-6P897
JL571b	25050267		NSCT-3P95
	Plugs		
JL602b	25055627		NPLG-6P589
JL971b	25055627		NPLG-6P589
P1501	25055038		NPLG-2P29
P501,P502	25055038		NPLG-2P29
P551a	25055135		NPLG-5P119
	Relaies		
RL581,RL582	25065517 or		NRL-2P5A-DC24-098 or
	25065510		NRL-2P5A-DC24-095

SECONDARY CIRCUIT PC BOARD(NAETC-6110-4A/4B/4C)

CIRCUIT NO.	PART NO.		DESCRIPTION
F915,F916	252079	⚠	6.3A-SE-EAK,Fuse
F915a,F916a	25050065	⚠	YSH403T,Fuseholder
JL921a	25051110		NSCT-6P897,Socket
JL922b	25050286		NSCT-9P114,Socket
R941,R942	453532294		0.22Ω ±5%,1/2W, Metal resistor

NOTE: THE COMPONENTS IDENTIFIDE BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

PRIMARY CIRCUIT PC BOARD(NAPS-6113-4A/4B/4C)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistor	
Q951	2213284 or	2SC1740S-R or
	2212115	2SC2458-GR
	Diodes	
D951-D954	22380260,	RL1N4003,
	22380032 or	1SR139-100 or
	22380035	GP104003E
D955	223163 or	1SS133 or
	223205	1SS270A
	Transfomer	
T902	2300671A	⚠ NPT-1111P <T/K>
	2300672	⚠ NPT-1111DG <W>
	Capacitors	
C901	3500191	⚠ DE7150F-103M
C952	354742219	220 μF,16V,Elect.
	Resistor	
R951	453530824	8.2Ω ±5%,1/2W, Metal
	Fuseholders	
F901a	25050065	⚠ YSH403T <W>
F902a	25050065	⚠ YSH403T
	Fuses	
F901	252198	⚠ 8A-UL <W>
F902	252077	⚠ 4A-SE-EAK
	Sockets	
JL942a	25051087	NSCT-3P874
	Plug	
P901a	25055675	NPLG-2P631
	Relay	
RL901	25065515 or	⚠ NRL-1P10A-DC12-097 or
	25065508	⚠ NRL-1P10A-DC12-093
	Switch	
S901	25065437	⚠ NSS-22157P <W/T>

FRONT/CENTER SPEAKER TERMINAL PC BOARD (NAETC-6115-4A/4B/4C)

CIRCUIT NO.	PART NO.	DESCRIPTION
C1541	374721034	0.01 μF±5%,50V, Plastic capacitor
C541,C542	374721034	0.01 μF±5%,50V, Plastic capacitor
JL503b	25051110	NSCT-6P897,Socket
P541	25060246	NTM-4PDMN166,Terminal
P542	25060247	NTM-2PDMN167,Terminal

AC OUTLET TERMINAL PC BOARD(NAETC-6116-4A)

CIRCUIT NO.	PART NO.	DESCRIPTION
P904	25051125	⚠ NSCT-4P912,Terminal <T>

POWER SWITCH PC BOARD(NASW-6117-4A/4B/4C)

CIRCUIT NO.	PART NO.	DESCRIPTION
C931a	27301216	⚠ Cover,capacitor
C931	3500191	⚠ DE7150F-103M, Capacitor IS
S931	25035550	⚠ NPS-111-L512P,Push switch

TONE VOLUME PC BOARD(NAAF-6103-4A)

CIRCUIT NO.	PART NO.	DESCRIPTION
C395,C396	374721534	0.015 μF±5%,50V, Plastic capacitor
JL391a	25051091	NSCT-7P878,Socket
R395,R396	5104356	N14RLC100KWT20Z Variable resistor

PREOUT/MAIN IN TERMINAL PC BOARD(NAETC-6102-4A)

CIRCUIT NO.	PART NO.	DESCRIPTION
C1414	374723344	0.33 μF±5%,50V, Plastic capacitor
JL401b	25051087	NSCT-3P874,Socket
JL402a	25051093	NSCT-9P880,Socket
JL603b	25055628	NPLG-7P590,Plug
P1401	25045458 or	NPJ-6PDBL279 or
	25045300	NPJ-6PDBL159,Terminal
P1402,P1404	25045298 or	NPJ-2PDBL157 or
	25045456	NPJ-2PDBL277,terminal

MR/RI TERMINAL PC BOARD(NAETC-6096-4A/4B)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors	
Q981,Q982	221282 or	DTC144ES or
	2213560	RN1204
	Diodes	
D981-D983	223163 or	1SS133 or
	223205	1SS270A
	Capacitors	
C981	374724724	4700pF±5%,50V,Plastic
C982	353741009	10 μF,16V,Elect.
	Socket	
JL242a	25051093	NSCT-9P880
	Plugs	
JL942b	25055624	NPLG-3P586
JL972b	25055627	NPLG-6P589
	Terminals	
P981	25045293	HSJ1003-01-012
P982	25045330 or	NPJ-2PDBL184 or
	25045481	NPJ-2PDBL299

SURROUND POWER AMPLIFIER PC BOARD (NAAF-6097-4A/4B)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors	
Q601-Q606	2211733 or	2SC1845-E
	2211732	2SC1845-F
Q607,Q608	2213284 or	2SC1740S-R or
	2212115	2SC2458-GR
Q609-Q612	2211354 or	2SA949-Y
	2211353	2SA949-O
Q613,Q614	2211634 or	2SC2229-Y
	2211633	2SC2229-O
Q615,Q616	2211354 or	2SA949-Y
	2211353	2SA949-O
Q617,Q618	2211634 or	2SC2229-Y
	2211633	2SC2229-O
Q619,Q620	2213284 or	2SC1740S-R or
	2212115	2SC2458-GR
Q621,Q622	2203010	2SC5171
Q623,Q624	2203000	2SA1930

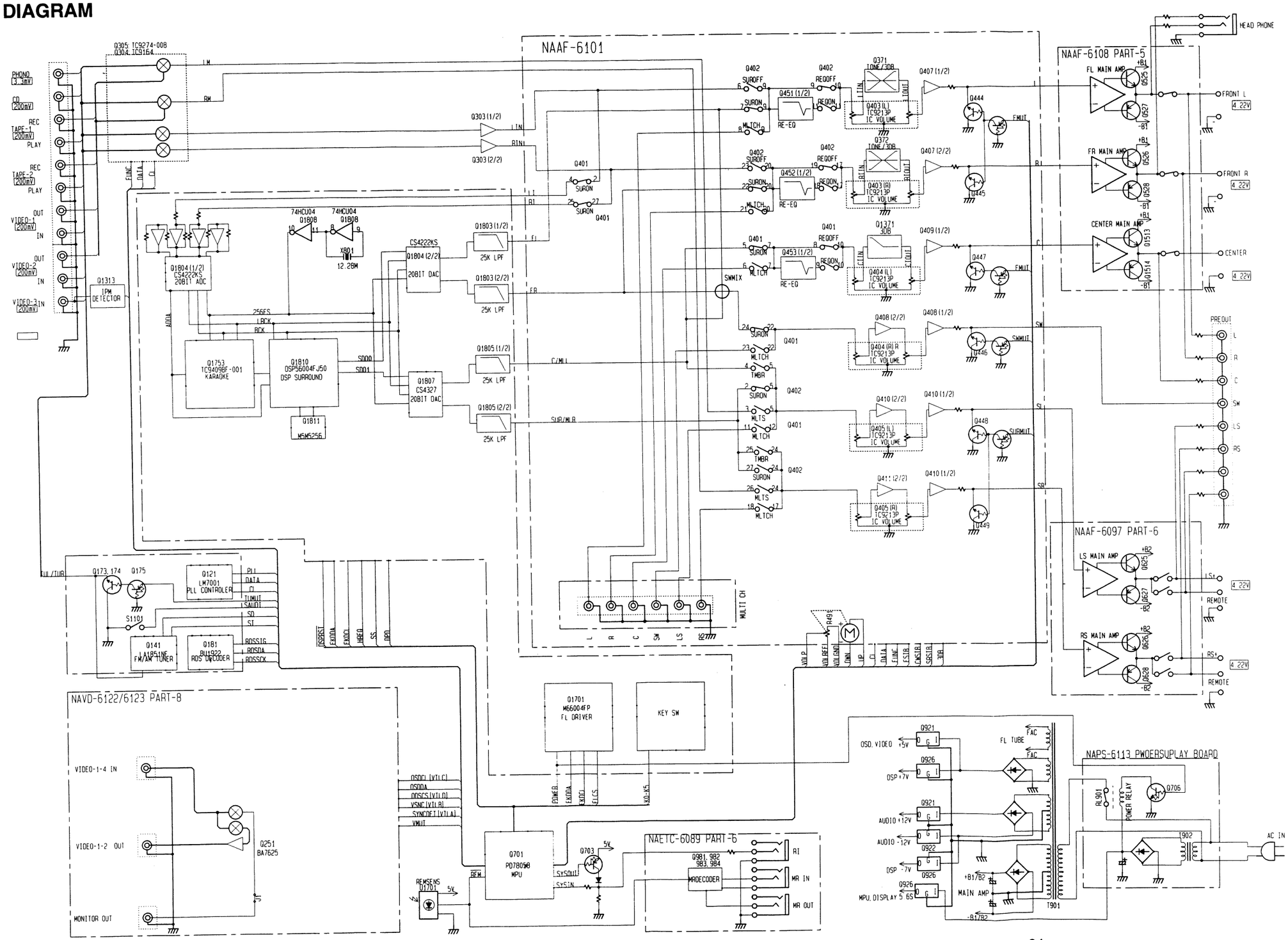
CIRCUIT NO.	PART NO.		DESCRIPTION
	Transistors		
Q625,Q626	2202922,	*	2SC5196-R,
	2202923,	*	2SC5196-O,
	2202373,	*	2SC4466-O,
	2202375 or	*	2SC4466-P or
	2202374	*	2SC4466-Y,
Q627,Q628	2202912,	*	2SA1939-R,
	2202913,	*	2SA1939-O,
	2202363,	*	2SA1693-O,
	2202365 or	*	2SA1693-P or
	2202364	*	2SA1693-Y
Q629,Q630	2211733 or		2SC1845-E or
	2211732		2SC1845-F
Q681,Q682	2213650		DTD113ZS
	Diodes		
D601,D602	22380260,		RL1N4003,
	22380032 or		1SR139-100 or
	22380035		GP104003E
D681,D682	223163 or		1SS133 or
	223205		1SS270A
	Coil		
L601,L602	231176S		S-1.3C <P/T/W/A>
	Capacitors		
C601,C602	354742209		22 μ F,16V,Elect.
C607,C608	354742219		220 μ F,16V,Elect.
C609,C610	354744709		47 μ F,16V,Elect.
C617,C618	354781009		10 μ F,50V,Elect.
C623,C624	374721044		0.1 μ F ± 5%,50V,Plastic
C629,C630	354784719		470 μ F,50V,Elect.
C631	354781009		10 μ F,50V,Elect.
C632-C634	354761019		100 μ F,35V,Elect.
	Resistors		
R623,R624	443526804		68 Ω ± 5%,1/2W, Metal oxide
R625-R628	443525604		56 Ω ± 5%,1/2W, Metal oxide
R629-R632	443526804		68 Ω ± 5%,1/2W, Metal oxide
R637,R638	5210288		N06HR2.2KBE,Trimming
R643,C644	443521514		150 Ω ± 5%,1/2W, Metal oxide
R645-R648	453530224		2.2 Ω ± 5%,1/2W, Metal
R649,R650	4000131		RGC22-0.22 OHMK,Metal plate
R655,R656	453630824		8.2 Ω ± 5%,1W, Metal
R669,R670	453530224		2.2 Ω ± 5%,1/2W, Metal
R675,R676	453532294		0.22 Ω ± 5%,1/2W, Metal
	Relaies		
RL681,RL682	25065517 or		NRL-2P5A-DC24-098 or
	25065510		NRL-2P5A-DC24-095
	Sockets		
JL601a	25051110		NSCT-6P897
JL603a	25051091		NSCT-7P878
JL691b	25050267		NSCT-3P95
	Plugs		
P601,P602	25055038		NPLG-2P29
P611	25055133		NPLG-3P117

SPEAKER TERMINAL PC BOARD(NAETC-6098-4A/4B)

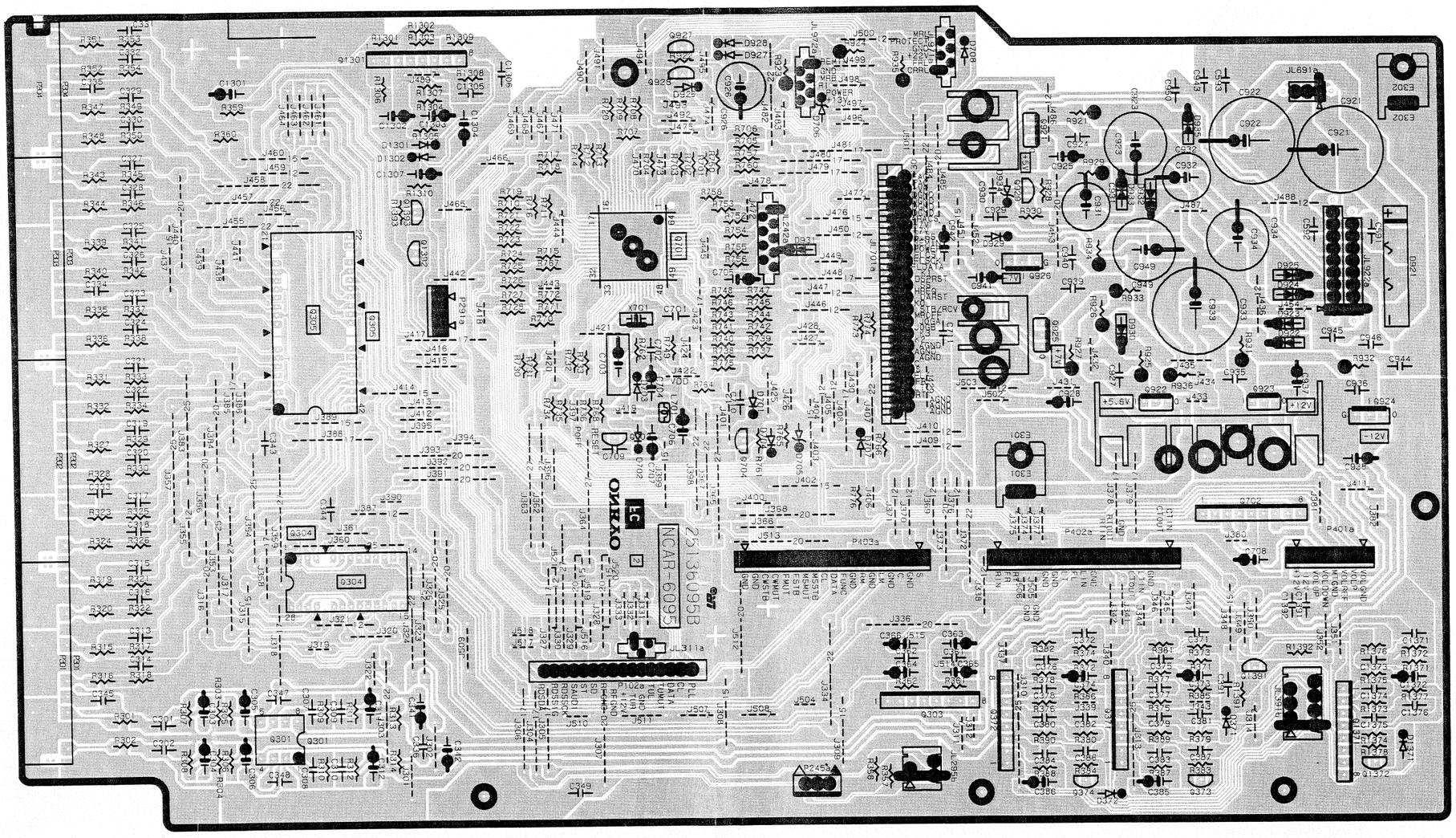
CIRCUIT NO.	PART NO.	DESCRIPTION
C641-C644	374721034	0.01 μ F ± 5%,50V, Plastic capacitor
JL601b	25051110	NSCT-6P897,Socket
P641	25060224 or	NTM-8PDMN168 or
	25060158	NTM-8PDML064, Terminal

NOTE: T : Asian model only
W: Wolrdwide model only
K : Korean model only

BLOCK DIAGRAM

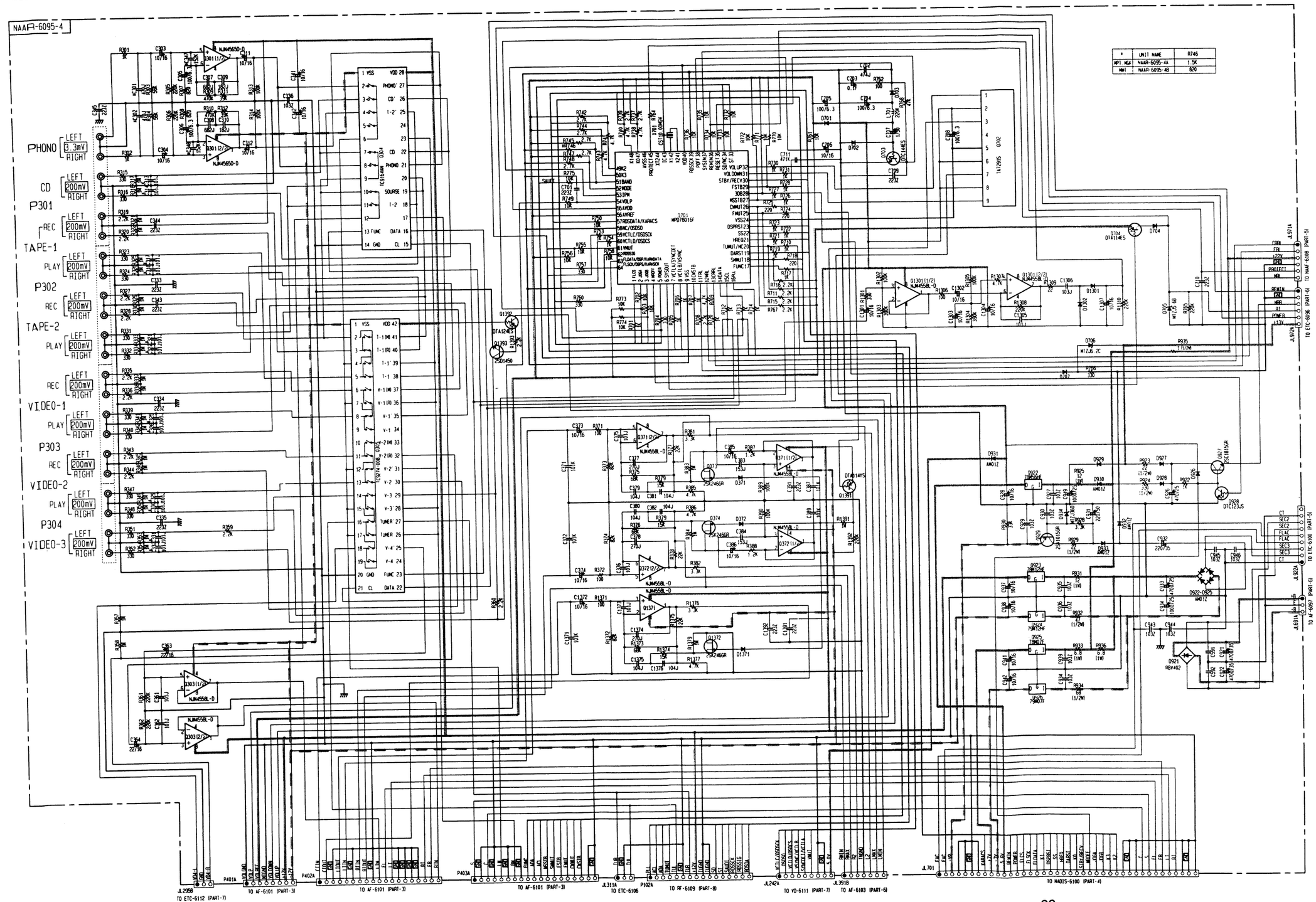


PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE



MAIN CIRCUIT PC BOARD

SCHEMATIC DIAGRAM



*	UNIT NAME	R746
MP1 MEX	NAAR-6095-4A	1.5K
MM1	NAAR-6095-4B	820

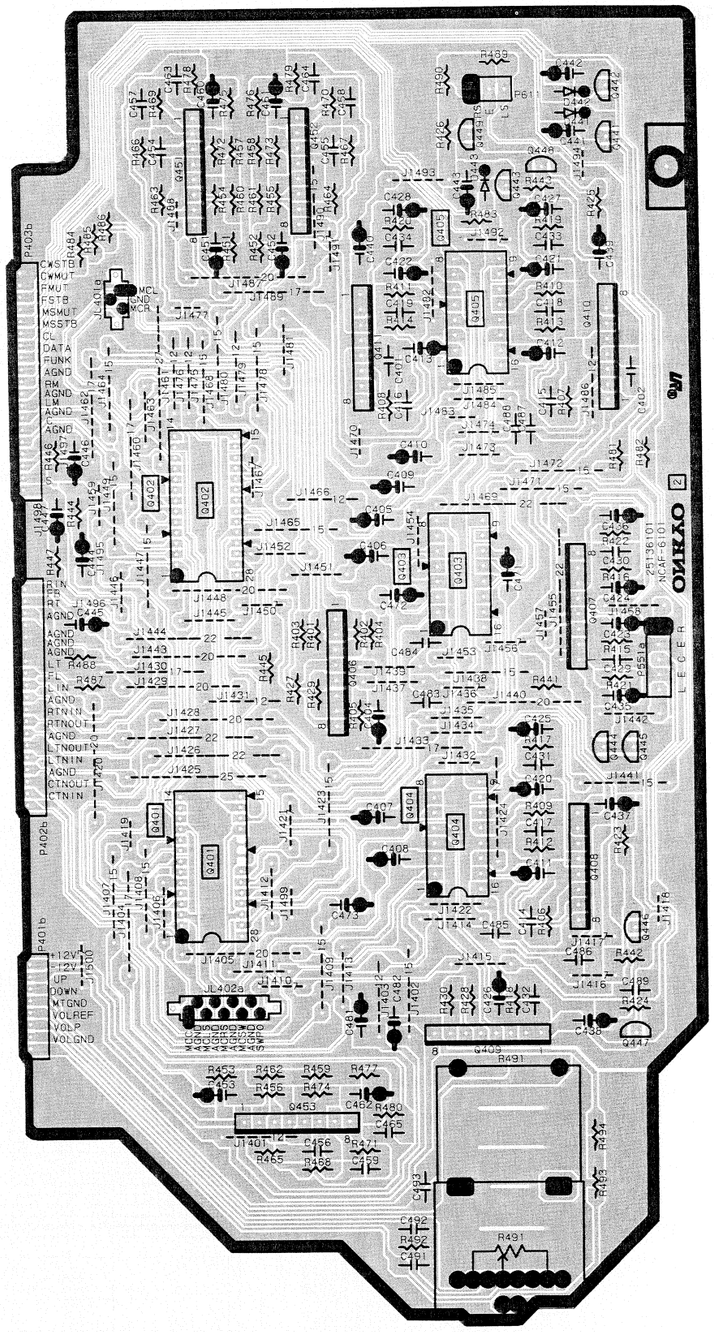
PRINTED CIRCUIT BOARD-PARTS LIST

ELECTRO VOLUME CIRCUIT PC BOARD(NAAF-6101-4A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q401	22240798	TC9162AN
Q402	22240799	TC9163AN
Q403-Q405	22240266	TC9213P
Q406-Q411	22240293 or	NJM4558L-D or
Q451-Q453	22240247	BA15218N
	Transistors	
Q441-Q443	2213510 or	DTA114ES or
	2214350	RN2202
Q444-Q449	2213631 or	RN1241-A or
	2213632	RN1241-B
	Diodes	
D441-D443	223163 or	1SS133 or
	223205	1SS270A
	Capacitors	
C404-C410	354741009	10 μF,16V,Elect.
C411-C413	354780229	2.2 μF,50V,Elect.
C417	374721034	0.01 μF±5%,50V,Plastic
C420-C422	354741009	10 μF,16V,Elect.
C423-C428	354780229	2.2 μF,50V,Elect.
C435-C440	354744709	47 μF,16V,Elect.
C441-C447	354741009	10 μF,16V,Elect.
C451-C453	354741009	10 μF,16V,Elect.
C454-C459	374721224	1200pF±5%,50V,Plastic
C460-C462	354741009	10 μF,16V,Elect.
C463-C465	374722224	2200pF±5%,50V,Plastic
C471-C473	354741009	10 μF,16V,Elect.
C481,C482	354741009	10 μF,16V,Elect.
	Resistors	
R491	5146066	N16RGL20KB25F,Variable
	Sockets	
JL245	2009990449UL	NSAS-6P0600
JL401a	25051087	NSCT-3P874
JL402b	25051093	NSCT-9P880
P401b	25051233	NSCT-8P1023
P402b	25051530	NSCT-19P1317
P403b	25051530	NSCT-19P1317
P551a	2009990466UL	NSAS-10P0620
P611	2009990449UL	NSAS-6P0600

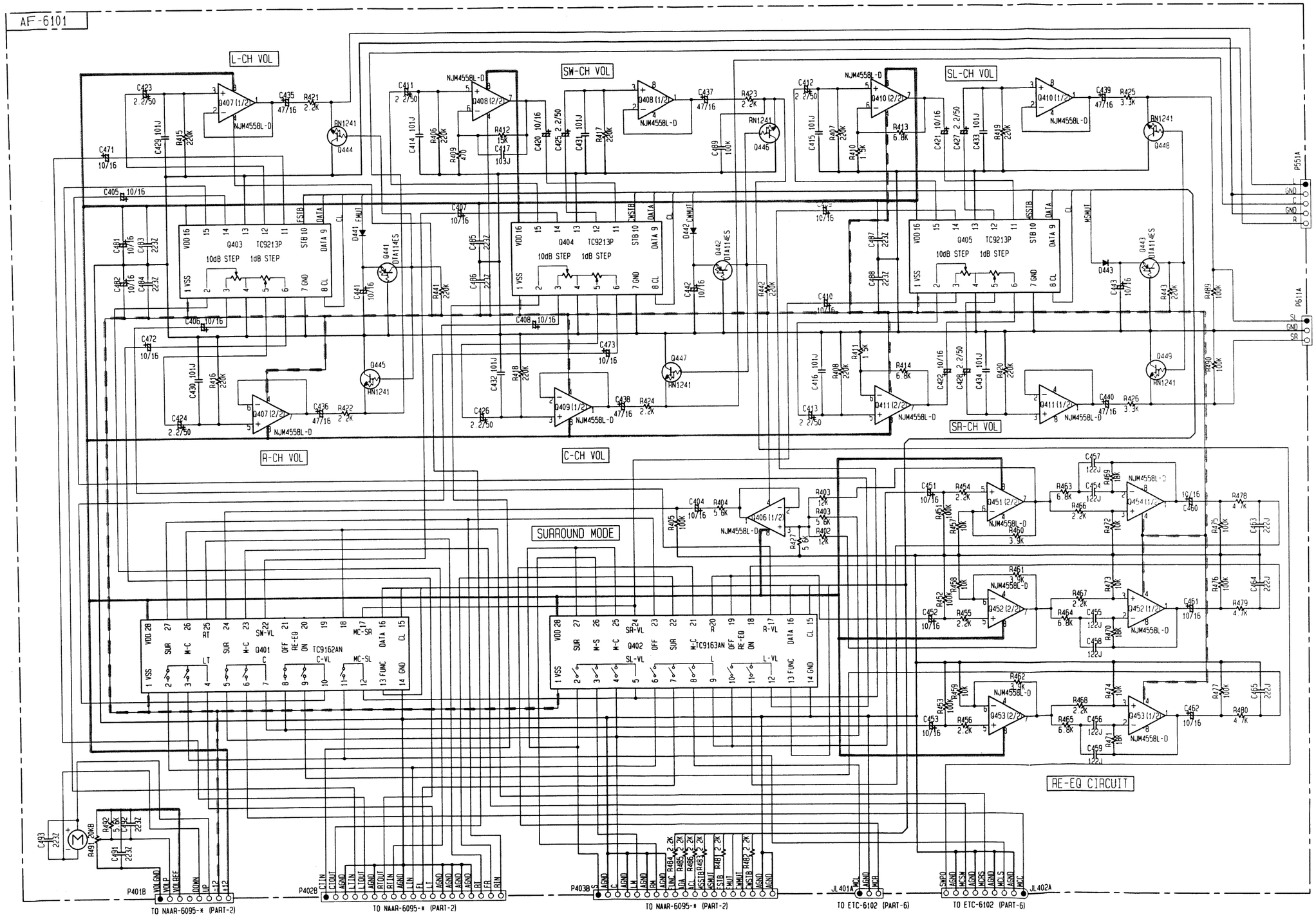
TX-SE600

PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE



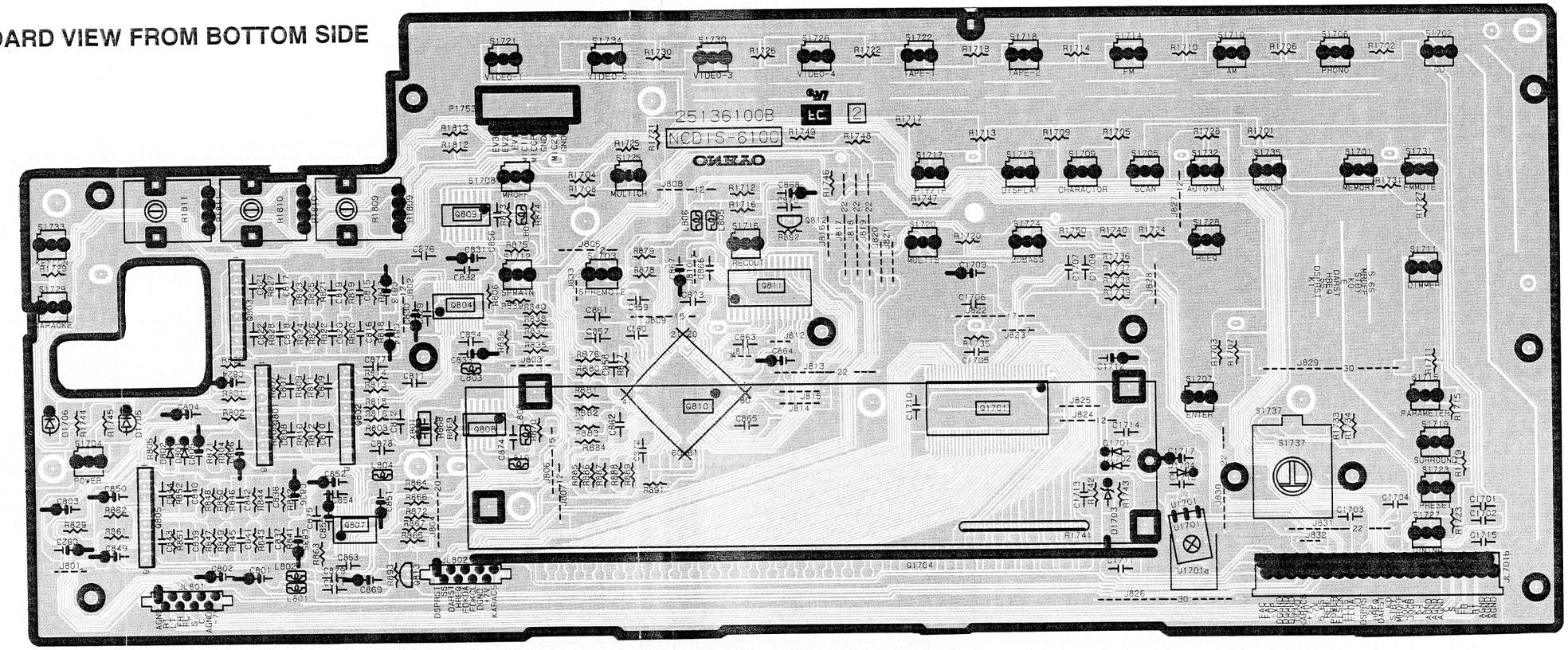
ELECTRO VOLUME CIRCUIT PC BOARD

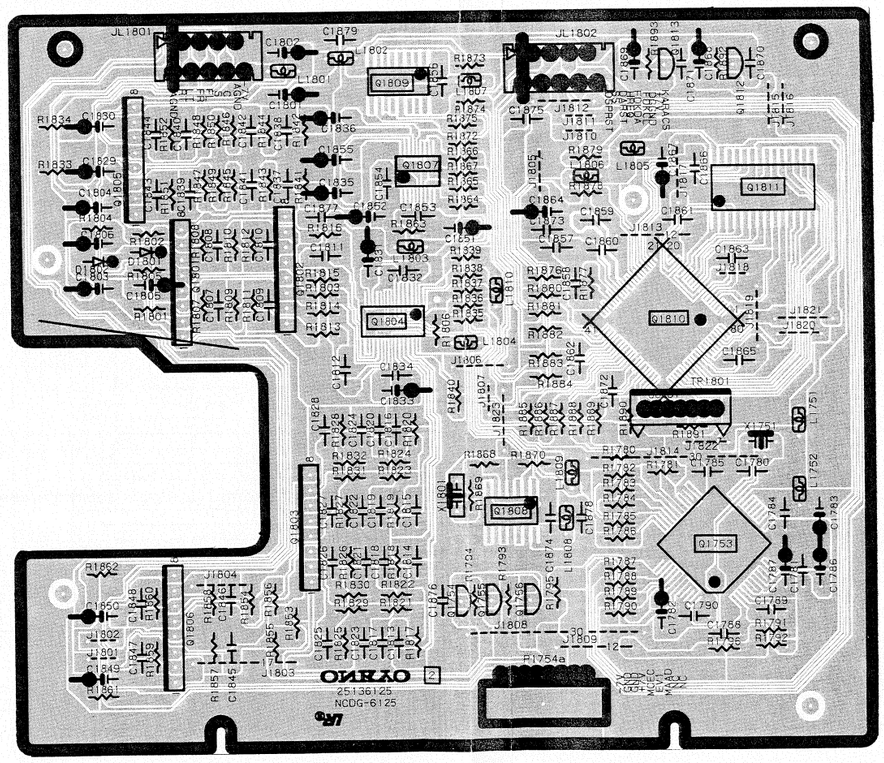
SCHEMATIC DIAGRAM



TX-SE600

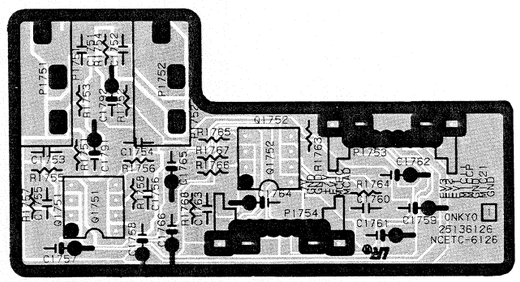
PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE





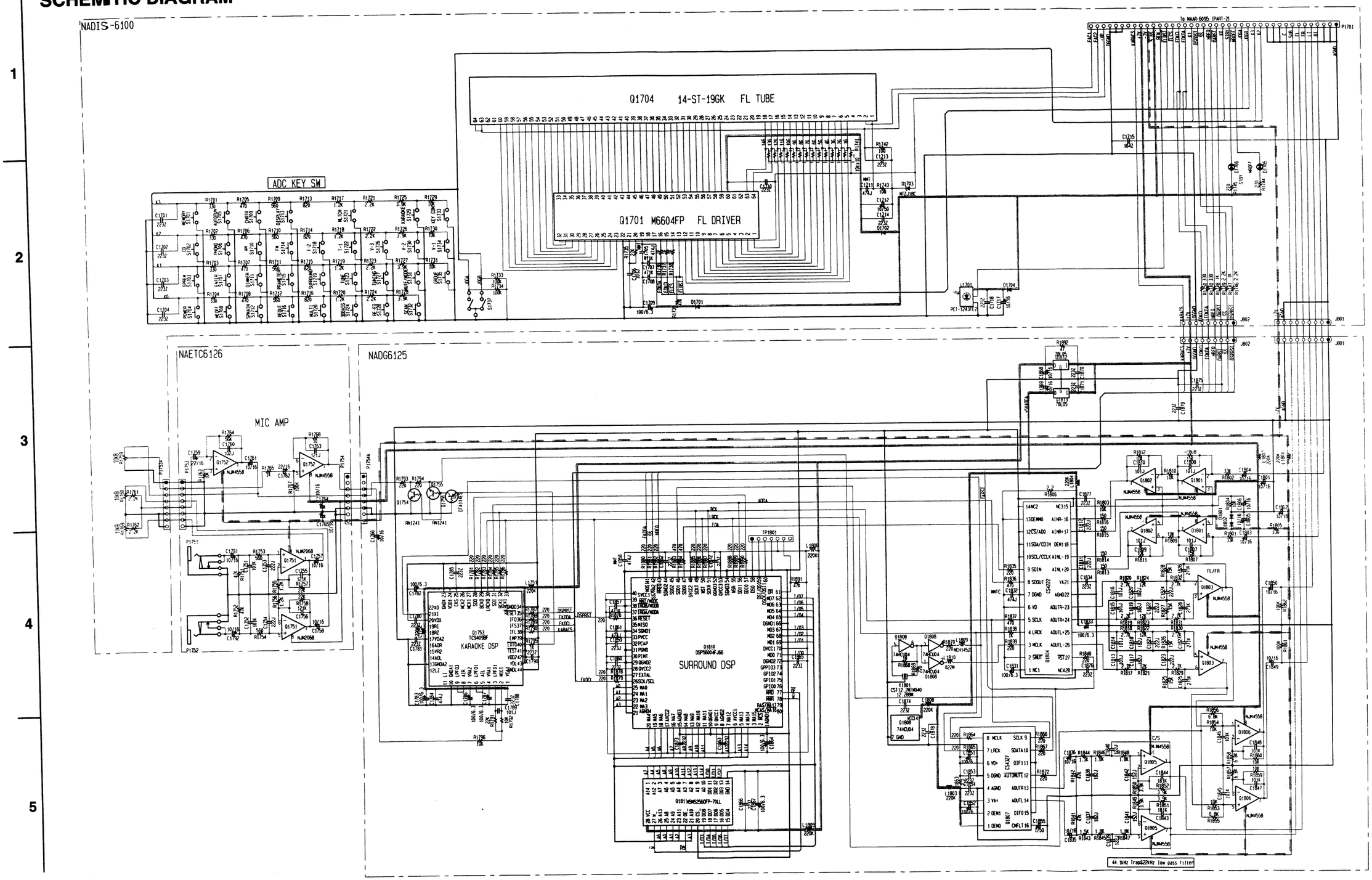
DSP CIRCUIT PC BOARD

DISPLAY CIRCUIT PC BOARD

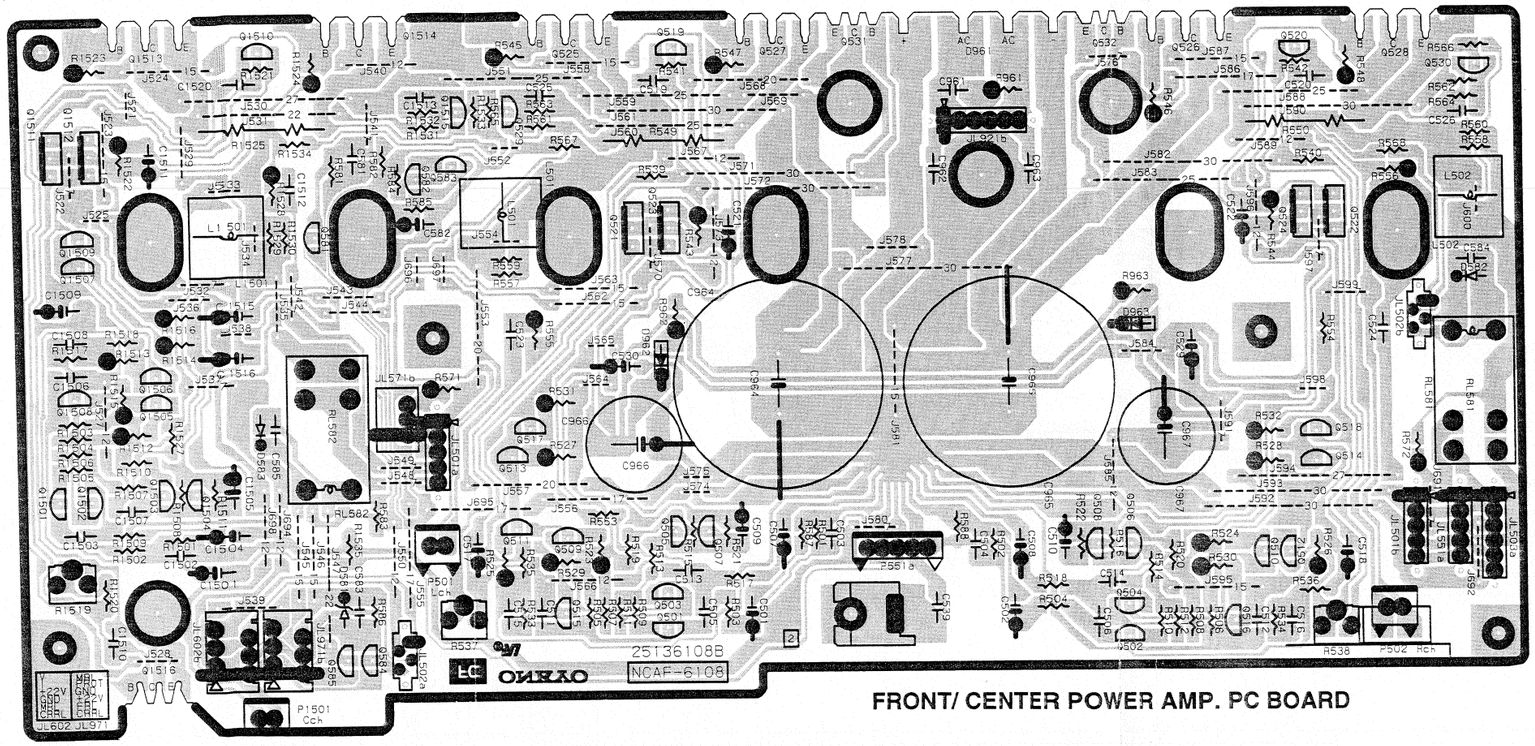


MIC INPUT TERMINAL PC BOARD

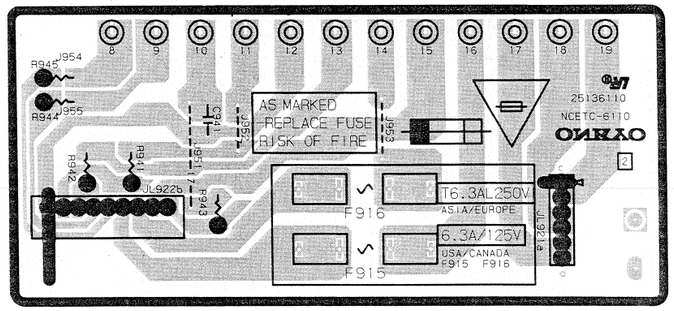
SCHEMATIC DIAGRAM



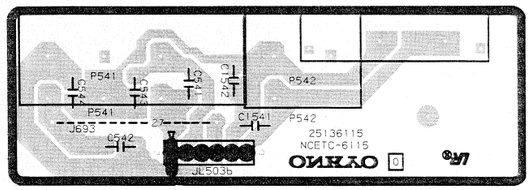
PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE



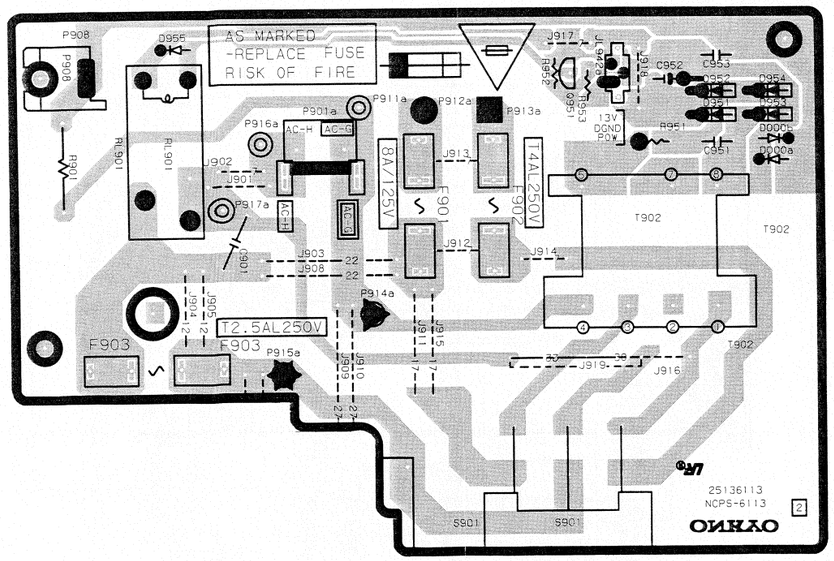
FRONT/ CENTER POWER AMP. PC BOARD



SECONDARY CIRCUIT PC BOARD

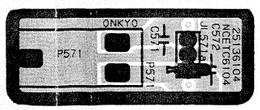


FRONT/ CENTER SPEAKER TERMINAL PC BOARD

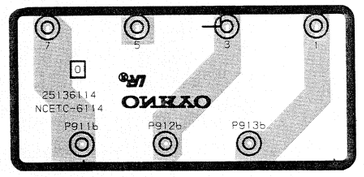


PRIMARY CIRCUIT PC BOARD

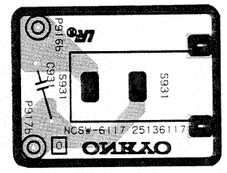
AC OUTLET TERMINAL PC BOARD



HEADPHONE TERMINAL PC BOARD

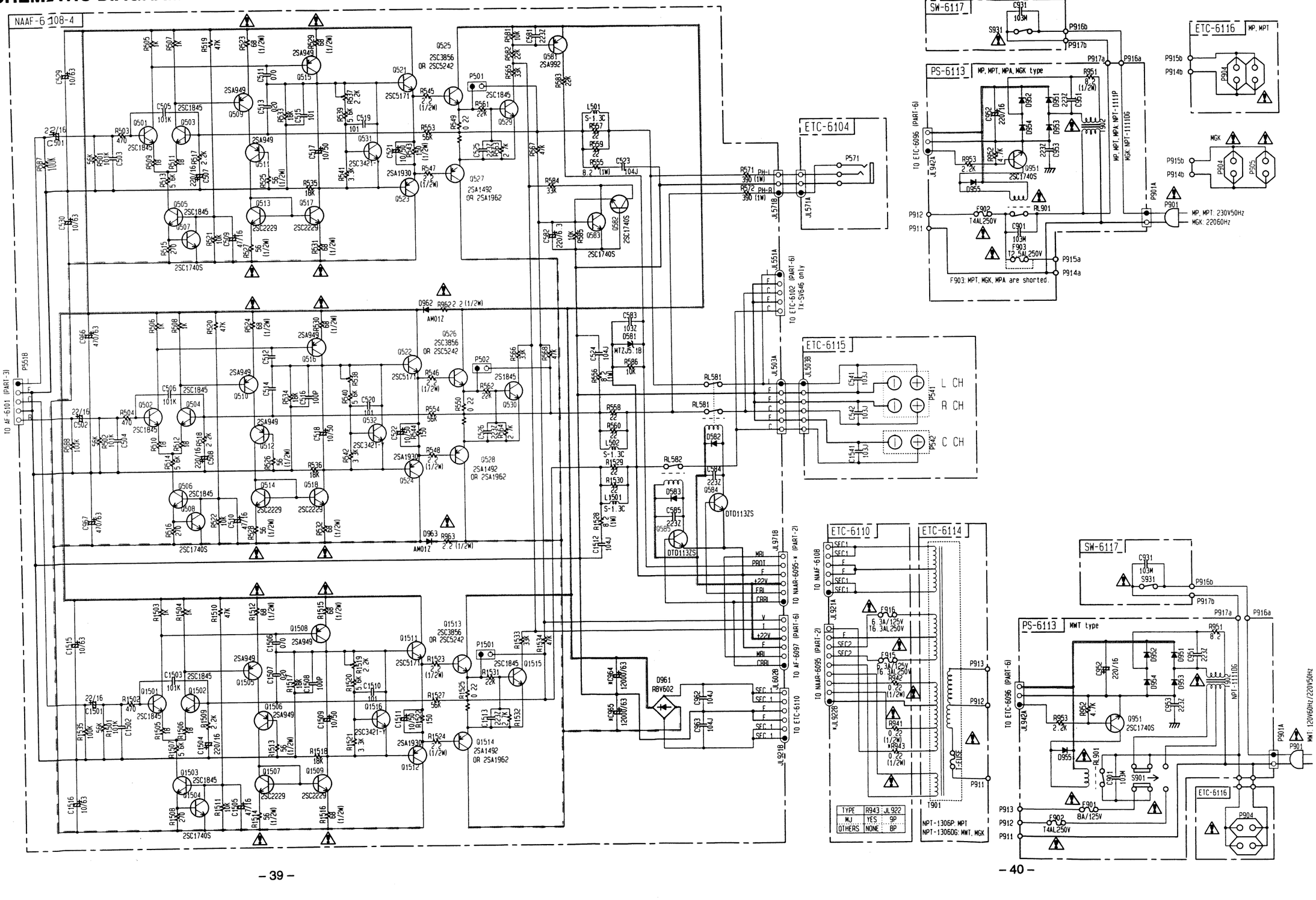


TRANSFORMER TERMINAL PC BOARD

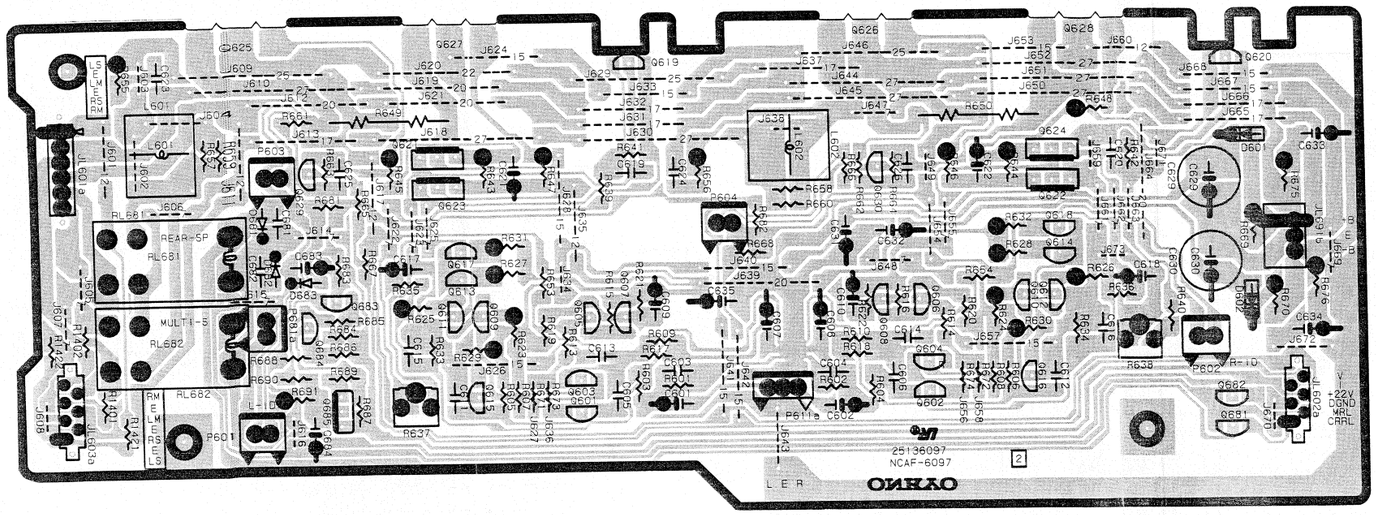


POWER SWITCH PC BOARD

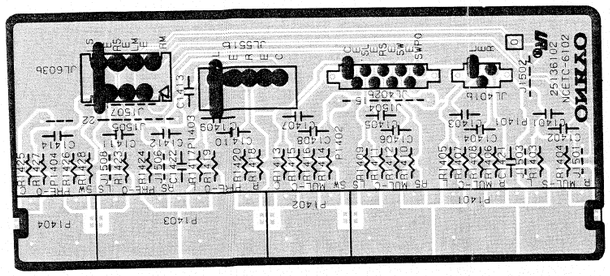
SCHEMATIC DIAGRAM



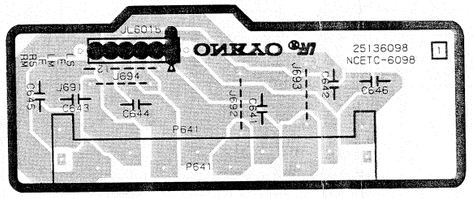
PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE



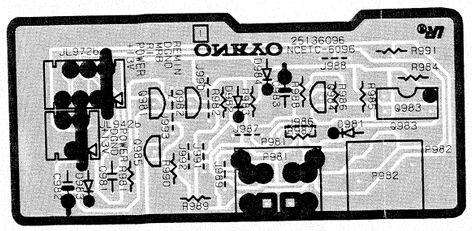
SURROUND POWER AMP PC BOARD



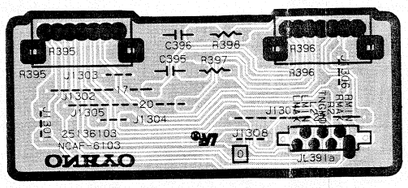
PRE. OUT/ MAIN IN TERMINAL PC BOARD



SPEKAR TERMINAL PC BOARD



MR/ RI TERMINAL PC BOARD



TONE VOLUME PC BOARD

ADJUSTMENT PROCEDURES

AMPLIFIER SECTION

Idling Current Adjustment

Connect the DC voltmeter to the terminals P501, P502, and P1501 (VCT and IID) on Front/Center power amp. pc board. After turn POWER on, adjust the trim resistors R537, R538, and R1519 so that the indicator of voltmeter becomes 0.5mV.

Connect the DC voltmeter to the terminals P601 and P602 (VCT and IID) on Surround power amp. pc board. After turn POWER on, adjust the trim resistors R637, and R638 so that the indicator of voltmeter becomes 1.5mV.

Allow the unit to warm up for about 5 minutes and check the voltage of these terminals.

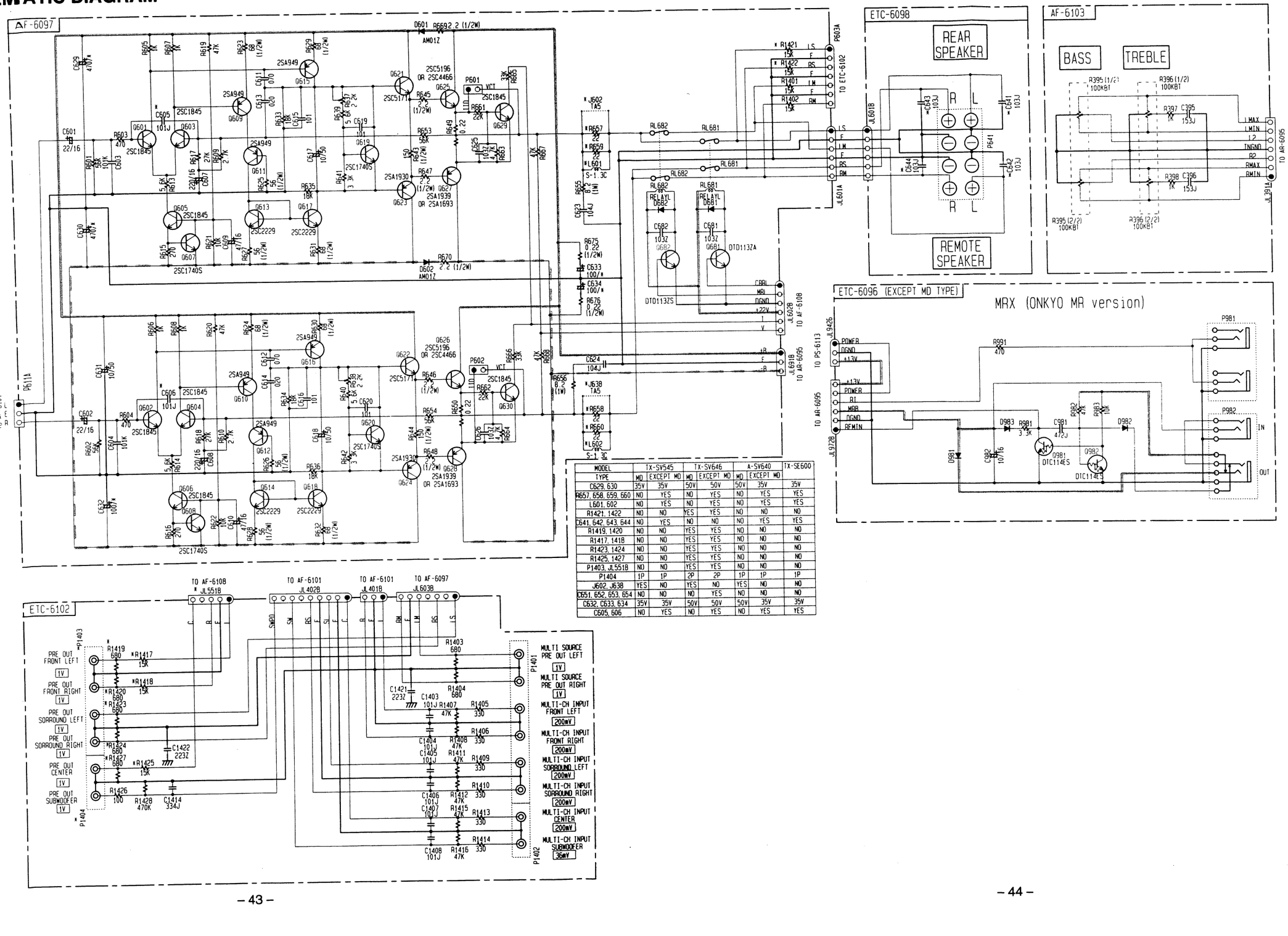
When the voltage is less than 4.0mV, adjust trim resistors so that the indicator of voltmeter becomes 4mV.

When the voltage is 4.0mV to 7.5mV, you are not neccesssary to adjust.

When the voltage is more than 7.5mV, adjust trim resistors so that the indicator of voltmeter becomes 7.5mV.

Note: No load, No signal

SCHEMATIC DIAGRAM



MODEL	TX-SV545		TX-SV646		A-SV640		TX-SE600
TYPE	MD	EXCEPT MD	MD	EXCEPT MD	MD	EXCEPT MD	
C629, 630	35V	35V	50V	50V	50V	35V	35V
R657, 658, 659, 660	NO	YES	NO	YES	NO	YES	YES
L601, 602	NO	YES	NO	YES	NO	YES	YES
R1421, 1422	NO	NO	YES	YES	NO	NO	NO
C641, 642, 643, 644	NO	YES	NO	NO	NO	YES	YES
R1419, 1420	NO	NO	YES	YES	NO	NO	NO
R1417, 1418	NO	NO	YES	YES	NO	NO	NO
R1423, 1424	NO	NO	YES	YES	NO	NO	NO
R1425, 1427	NO	NO	YES	YES	NO	NO	NO
P1403, JL551B	NO	NO	YES	YES	NO	NO	NO
P1404	1P	1P	2P	2P	1P	1P	1P
J602, J638	YES	NO	YES	NO	YES	NO	NO
C651, 652, 653, 654	NO	NO	NO	YES	NO	NO	NO
C632, C633, 634	35V	35V	50V	50V	50V	35V	35V
C605, 606	NO	YES	NO	YES	NO	YES	YES

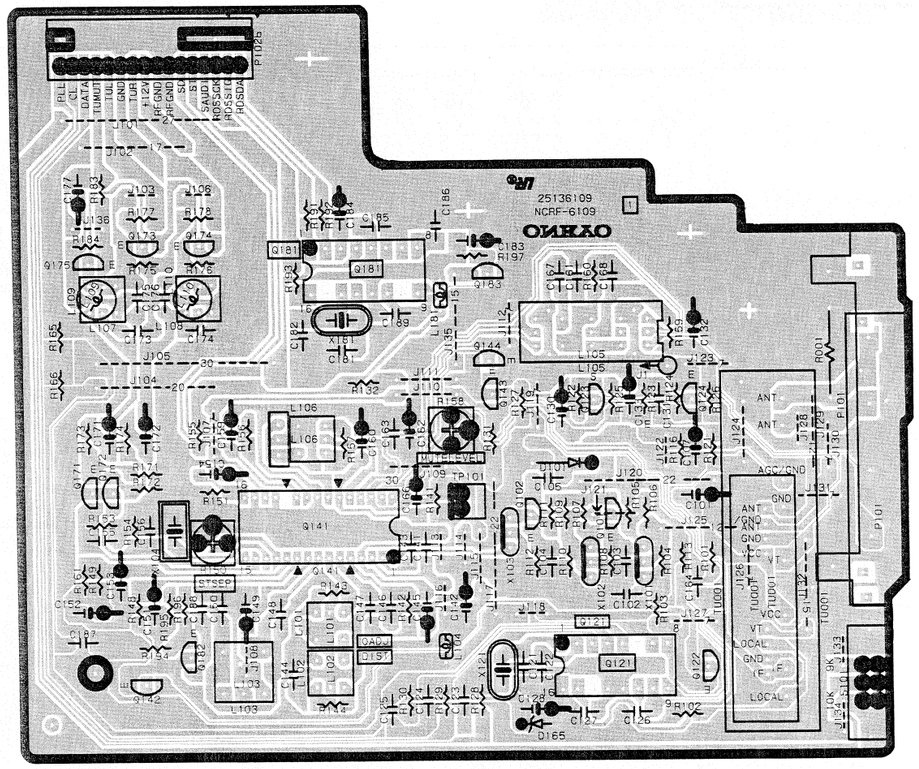
PRINTED CIRCUIT BOARD -PARTS LIST

TUNER CIRCUIT PC BOARD(NARF-6109-4A/4B/4C)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Front end	
TU001	240099	ENV172A0G1
	ICs	
Q121	22241076 or 22240090	LM7001J or LM7001
Q141	22240983	LA1851N-F
	Transistors	
Q101	2210746	2SC945A-P
Q102	2211723	2SC1923-O
Q122,Q142	2213510 or 2214350	DTA114ES or RN2202
Q123	2212445	2SK365-GR
Q124	2213284 or	2SC1740S-R or
Q171,Q172	2212115	2SC2458-GR
Q143	221282 or 2213560	DTC144ES or RN1204
Q144	2213640 or 2214660	DTC123JS or RN1205
Q173,Q174	2215024	2SD1468S-R
Q175	2213510 or 2214350	DTA114ES or RN2202
	Diodes	
D165	224470512	MTZJ5.1B
	Transformers and coils	
L101	233457	NFIF-4081
L102	233458	NFIF-4082
L103	233501	NMC-3088
L104	233454M022	NCH-1452 022M
L105	232174	NMRF-5077
L106	232176	NMIF-6094
L107,L108	233484	NMC-4085
	Cermaic filters	
X101,X102	3010071	SFE-10.7MA5 RED
X103	3010130	SFE10.7MZ2K
X104	3010268	CSB456F23
	Oscillators	
X121	3010141	XTL-7.2M

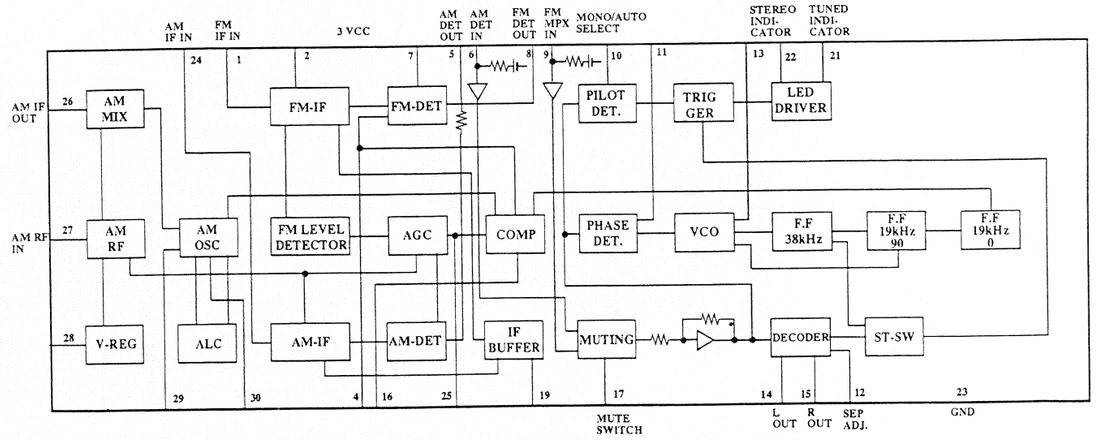
CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C101,C128	354741019	100 μF,16V,Elect.
C130,C159	354780229	2.2 μF,50V,Elect.
C131	374722234	0.022 μF±5%,50V,Plastic
C132,C153	354783399	0.33 μF,50V,Elect.
C133,C142	354741019	100 μF,16V,Elect.
C145,C149	354780479	4.7 μF,50V,Elect.
C146	374723324	3300pF±5%,50V,Plastic
C147	374721034	0.01 μF±5%,50V,Plastic
C151,C152	354780109	1 μF,50V,Elect.
C154,C162	354741009	10 μF,16V,Elect.
C155,C156	374724724	4700pF±5%,50V,Plastic <T/K>
C155,C156	374725624	5600pF±5%,50V,Plastic <W>
C160	354784799	0.47 μF,50V,Elect.
C166	354741009	10 μF,16V,Elect.
C168	374724734	0.047 μF±5%,50V,Plastic
C171,C172	354741009	10 μF,16V,Elect.
C173,C174	374722724	2700pF±5%,50V,Plastic
C177	354780229	2.2 μF,50V,Elect.
	Resistors	
R150	5210261	N06HR5KBC,Trimming
R158	5210263	N06HR20KBC,Trimming
	Terminals	
P101	25060222 or 25060117	NTM-2PDML144 or NTM-2PDML051
	Socket	
P102b	25050986	NSCT-14P773
	Switch	
S101	25065286	NSS-22112
	Plug	
TP101	25055038	NPLG-2P29
	Shield plate	
TU001a	27150397	Front end

PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

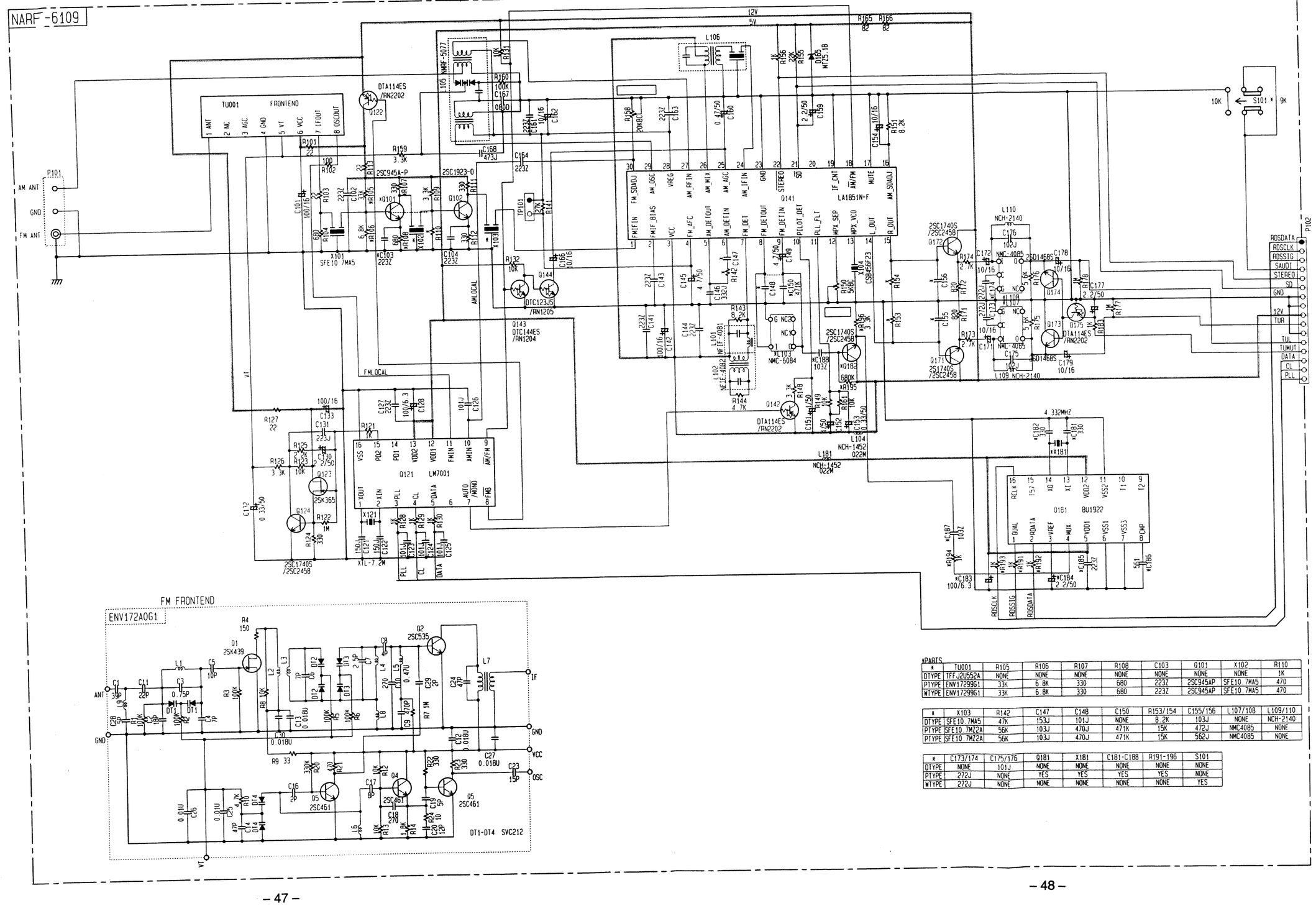


TUNER CIRCUIT PC BOARD

LA1851N-F (FM IF, MPX and AM Radio System)



SCHEMATIC DIAGRAM



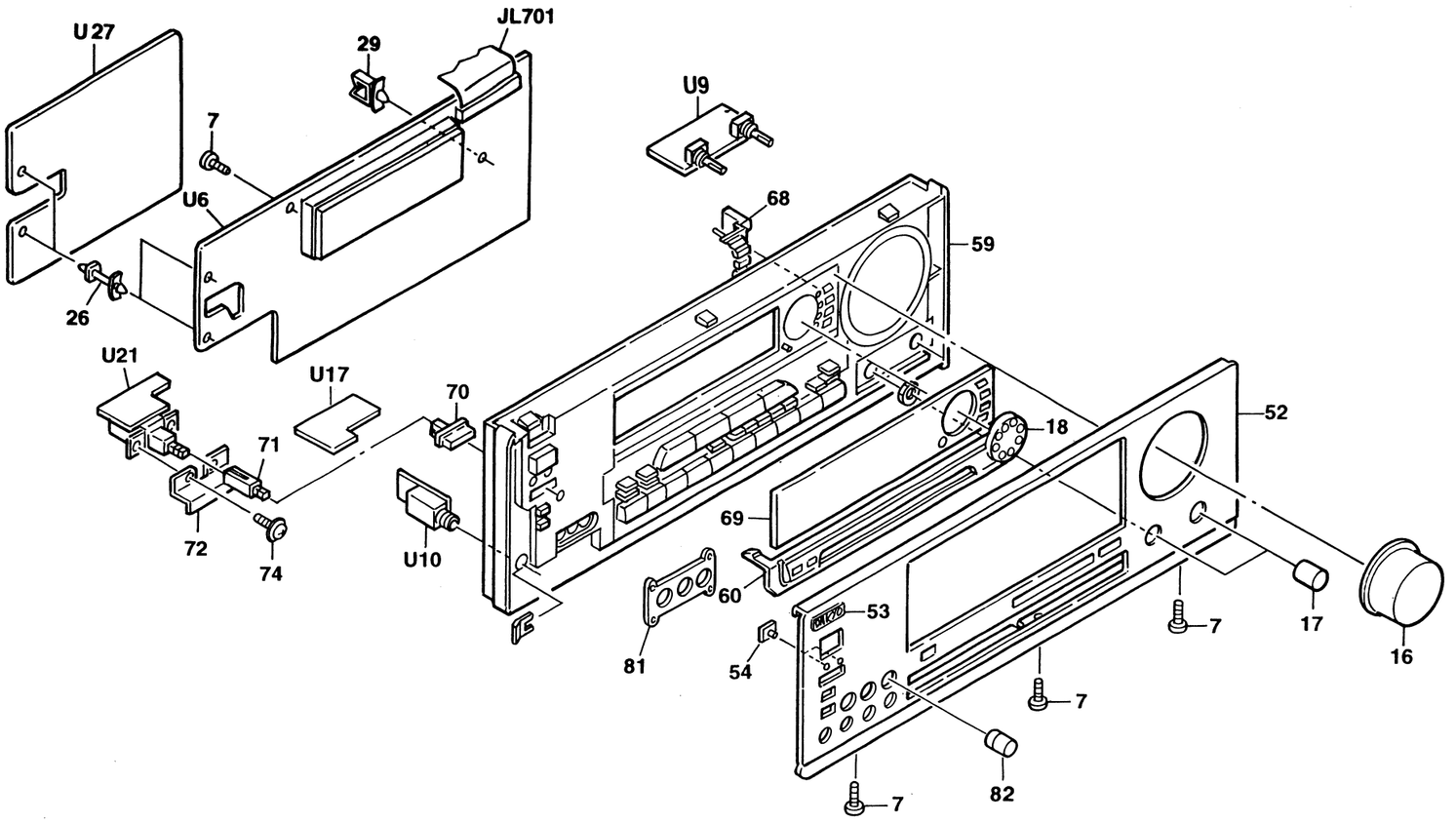
*PARTS

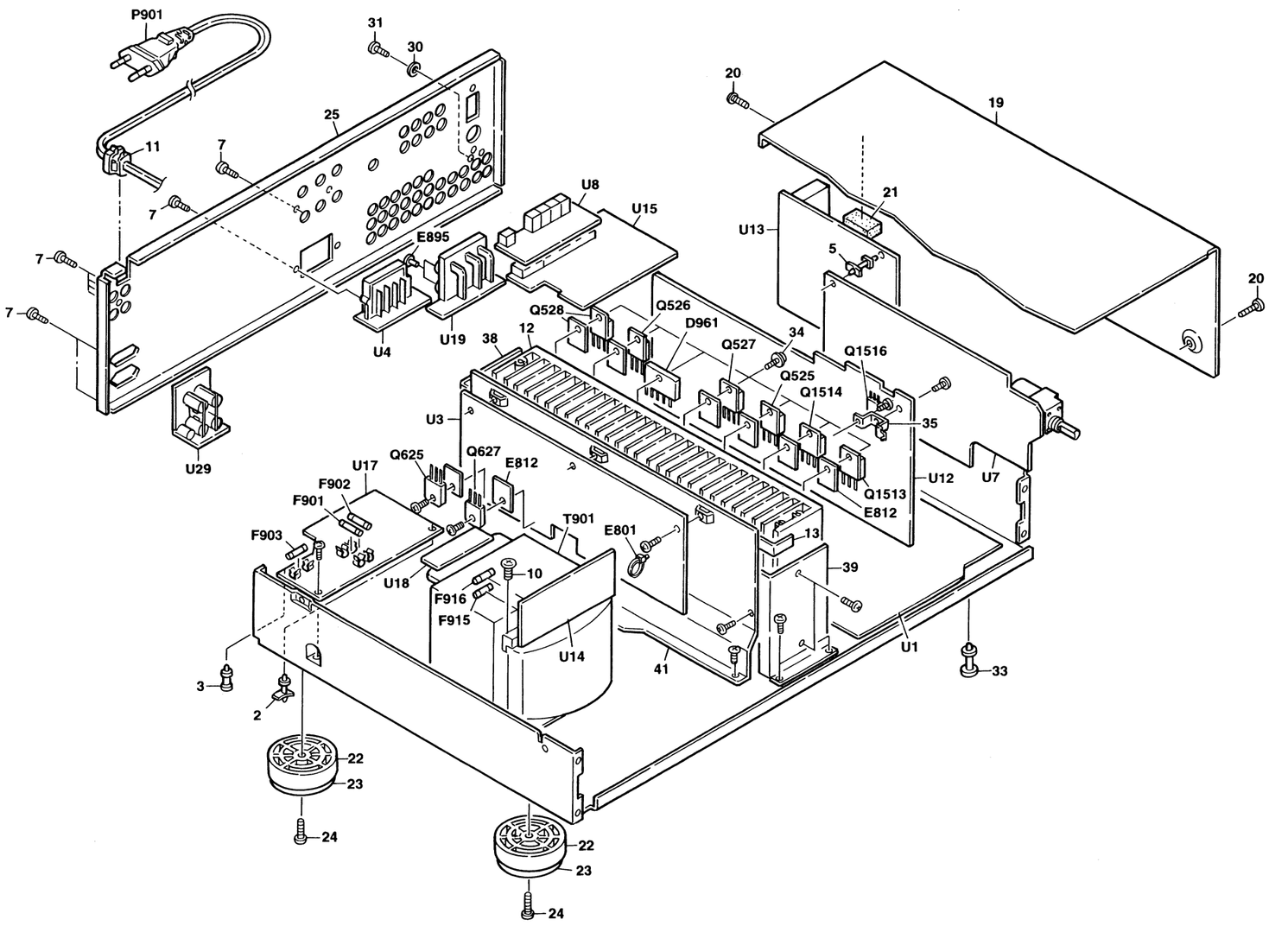
*	TU001	R105	R106	R107	R108	C103	Q101	X102	R110
DTYPE	TFFJ2U552A	NONE	NONE	NONE	NONE	NONE	NONE	NONE	1K
PTYPE	ENV17299G1	33K	6.8K	330	680	223Z	2SC945AP	SFE10.7MA5	470
WTYPE	ENV17299G1	33K	6.8K	330	680	223Z	2SC945AP	SFE10.7MA5	470

*	X103	R142	C147	C148	C150	R153/154	C155/156	L107/108	L109/110
DTYPE	SFE10.7MA5	47K	153J	101J	NONE	8.2K	103J	NONE	NCH-2140
PTYPE	SFE10.7MZ2A	56K	103J	470J	471K	15K	472J	NMC4085	NONE
PTYPE	SFE10.7MZ2A	56K	103J	470J	471K	15K	562J	NMC4085	NONE

*	C173/174	C175/176	Q181	X181	C181-C188	R191-196	S101
DTYPE	NONE	101J	NONE	NONE	NONE	NONE	NONE
PTYPE	272J	NONE	YES	YES	YES	NONE	NONE
WTYPE	272J	NONE	NONE	NONE	NONE	NONE	YES

EXPLODED VIEW





TX-SE600

PARTS LIST

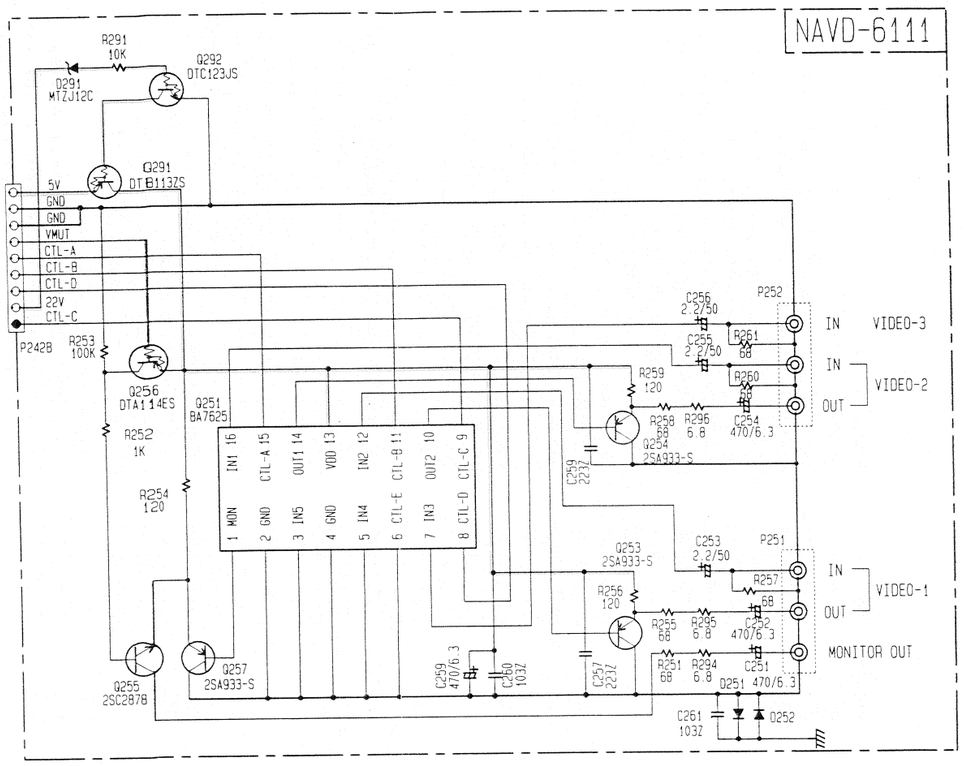
REF. NO.	PART NO.		DESCRIPTION
1	27100328A		Chassis
2	27190503A		KGLS-8RF,Holder
3	27190428A		KGLS-10RF,Holder
5	27190062		KGLS-12S,Holder
7	838130088		3TTB+8B,Self-tapping screw
10	830440089		4TTC+8C(BC),Self-tapping screw
11	27300750	⚠	#2271, Bushing cord
12	27160387		Heatsink
13	29110083		Tape
16	28325539		Knob, Volume <B>
	28325541		Knob, Volume <G>
17	28325405		Knob, Tone <B>
	28325407		Knob, Tone <G>
18	28325500		Knob, Jog <B>
	28325502		Knob, Jog <G>
19	28184698		Top cover <B>
	28184701		Top cover <G>
20	838430088		3TTB+8B(BC),Self-tapping screw <B>
	838230080		3TTB+8B(Ni),Self-tapping screw <G>
21	28141235		Cushion
22	27175319A		Leg
23	28141332		Cushion
24	831430088		3TTW+8B(BC),Self-tapping screw
25	27122379		Rear panel <T>
	27122380A		Rear panel <W>
	27122381		Rear panel <K>
26	27190470		KGLS-18S, Holder
29	27300243		WS-2W, Clamp
30	87643010		W3*10F(BC), Washer
31	838230088		3TTB+8B(NI), Nickel screw
33	27190813		KGPS-10RF, Holder
34	801433		3SMS8W.SW+14B(BC), Special screw
35	27141681		Retainer
36	28140680		Cushion
38	27141693		Retainer, Rear
39	27141694		Retainer, Front
41	27160386		Heatsink
52	27211951		Front panel <B>
	27211954		Front panel <G>
53	28135244		Badge <B>
	28135245		Badge <G>
54	28198778		Facet
59	27111025		Front bracket <B>
	27111026		Front bracket <G>
60	27215278		Decorative frame <B>
	27215280		Decorative frame <G>
68	28325542		Knob, Mode <B>
	28325544		Knob, Mode <G>
69	28191792A		Clear plate <B>
	28191793A		Clear plate <G>
70	28325497A		Knob, Power <B>
	28325499A		Knob, Power <G>
71	27273164		Joint
72	27141686A		Retainer
74	838430107		3TTB+10S(BC), Self-tapping screw
81	27262609		Plate
82	28325452		Knob, Mic. <B>
	28325495		Knob, Mic. <G>
D961	22380070,	⚠	D5SBA60,
	22380038 or	⚠	RBV602 or
	22380274	⚠	RS603M, Diode
E801	260208		Wire tie
E812	223024	⚠	AC238, Isolation sheet
E895	880009		NRP-345,Plastic rivet <T>
F901	252198	⚠	8A-UL, Primary fuse <W>
F902	252077	⚠	4A-SE-EAK,Primary fuse
F915,F916	252079	⚠	6.3A-SE-EAK,Secondary fuse
JL701	2047402512		NCFC7-402512,Flat cable
P901	253193HIT	⚠	AS-CEE,Power supply cord <T>
	253233KAW	⚠	AS-CEE-2,Power supply cord <W>
	253213WSE	⚠	AS-KS,Power supply cord <K>
P904,P905	25051266	⚠	NSCT-2P1056,AC outlet <K>

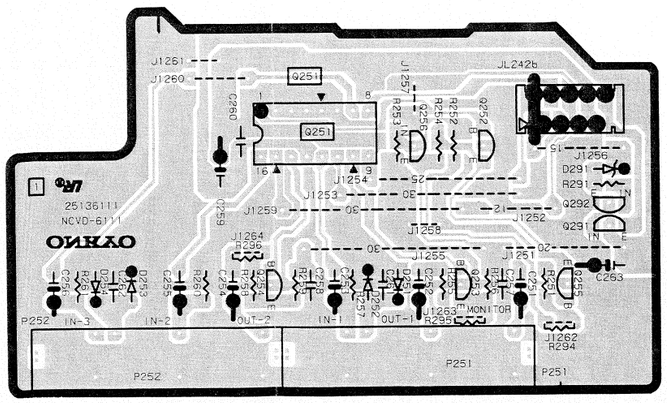
NOTE:
<B>: Black model only
<G>: Golden model only
<T>: Asian model only
<W>: Wolrdwide model only
<K>: Korean model only

REF. NO.	PART NO.		DESCRIPTION
Q1516	2212654 or		2SC3421-Y or
Q531,Q532	2212653		2SC3421-O,Transistor
Q625,Q626	2202922,	*	2SC5196-R,
	2202923,	*	2SC5196-O,
	2202373,	*	2SC4466-O,
	2202375 or	*	2SC4466-P or
	2202374	*	2SC4466-Y, Transistor
Q627,Q628	2202912,	*	2SA1939-R,
	2202913,	*	2SA1939-O,
	2202363,	*	2SA1693-O,
	2202365 or	*	2SA1693-P or
	2202364	*	2SA1693-Y, Transistor
Q1513	2201653,	*	2SC3856-O,
Q525,Q526	2201655,	*	2SC3856-P,
	2201654,	*	2SC3856-Y,
	2202842 or	*	2SC5242-R or
	2202843	*	2SC5242-O, Transistor
Q1514	2201663,	*	2SA1492-O,
Q527,Q528	2201665,	*	2SA1492-P,
	2201664,	*	2SA1492-Y,
	2202832 or	*	2SA1962-R or
	2202833	*	2SA1962-O,Transistor
T901	2301281	⚠	NPT-1306P,Power transformer <T>
	2301282	⚠	NPT-1306DG,Power transformer <W/K>
U1	1A757595-4A		NAAR-6095-4A,Main circuit pc board ass'y <T/K>
	1A757595-4B		NAAR-6095-4B,Main circuit pc board ass'y <W>
U2	1A757596-4A		NAETC-6096-4A,RI/MR terminal pc board ass'y <T/K>
	1A757596-4B		NAETC-6096-4B,RI/MR terminal pc board ass'y <W>
U3	1A757597-4A		NAAF-6097-4A,Surround power amp. pc board ass'y <T/K>
	1A757597-4B		NAAF-6097-4B,Surround power amp. pc board ass'y <W>
U4	1A757598-4A		NAETC-6098-4A,Spekaer terminal pc board <T/K>
	1A757598-4B		NAETC-6098-4B,Spekaer terminal pc board <W>
U6	1A757500-4A		NADIS-6100-4A,Display circuit pc board
U7	1A757501-4A		NAAF-6101-4A,Electro volume circuit pc board
U8	1A757502-4A		NAETC-6102-4A,Pre. out/Main in terminal pc board ass'y
U9	1A757503-4A		NAAF-6103-4A,Tone volume pc board ass'y
U10	1A757504-4A		NAETC-6104-4A,Headphone terminal pc board ass'y
U12	1A757508-4A		NAAF-6108-4A,Front/Center power amp. pc board ass'y <T>
	1A757508-4B		NAAF-6108-4B,Front/Center power amp. pc board ass'y <W>
	1A757508-4C		NAAF-6108-4C,Front/Center power amp. pc board ass'y <K>
U13	1A757509-4A		NARF-6109-4A,Tuner circuit pc board ass'y <T>
	1A757509-4B		NARF-6109-4B,Tuner circuit pc board ass'y <W>
	1A757509-4C		NARF-6109-4C,Tuner circuit pc board ass'y <K>
U14	1A757510-4A		NAETC-6110-4A,Secondary circuit pc board ass'y <T>
	1A757510-4B		NAETC-6110-4B,Secondary circuit pc board ass'y <W>
	1A757510-4C		NAETC-6110-4C,Secondary circuit pc board ass'y <K>
U15	1A757511-4A		NAETC-6111-4A,Video circuit pc board ass'y <T>
	1A757511-4B		NAETC-6111-4B,Video circuit pc board ass'y <W>
	1A757511-4C		NAETC-6111-4C,Video circuit pc board ass'y <K>
U17	1A757513-4A		NAPS-6113-4A,Primary circuit pc board ass'y <T>
	1A757513-4B		NAPS-6113-4B,Primary circuit pc board ass'y <W>
	1A757513-4C		NAPS-6113-4C,Primary circuit pc board ass'y <K>
U18	1A757514-4A		NAETC-6114-4A,Transformer terminal pc board ass'y <T>
	1A757514-4B		NAETC-6114-4B,Transformer terminal pc board ass'y <W>
	1A757514-4C		NAETC-6114-4C,Transformer terminal pc board ass'y <K>
U19	1A757515-4A		NAETC-6115-4A,Front/Center speaker terminal pc board ass'y <T>
	1A757515-4B		NAETC-6115-4B,Front/Center speaker terminal pc board ass'y <W>
	1A757515-4C		NAETC-6115-4C,Front/Center speaker terminal pc board ass'y <K>
U20	1A757516-4A		NAETC-6116-4A,AC outlet terminal pc board ass'y <T>
U21	1A757517-4A		NAPS-6117-4A,Power switch pc board ass'y <T>
	1A757517-4B		NAPS-6117-4B,Power switch pc board ass'y <W>
	1A757517-4C		NAPS-6117-4C,Power switch pc board ass'y <K>
U26	1A757525-4		NADG-6125-4,DSP circuit pc board ass'y
U27	1A757526-4		NAETC-6126-4,Mic. terminal pc board ass'y
U28	1A757569-4B		NAETC-6169-4B,AC outlet terminal pc board ass'y <W>

NOTE: THE COMPONENTS IDENTIFIDE BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIDE.

SCHEMATIC DIAGRAM





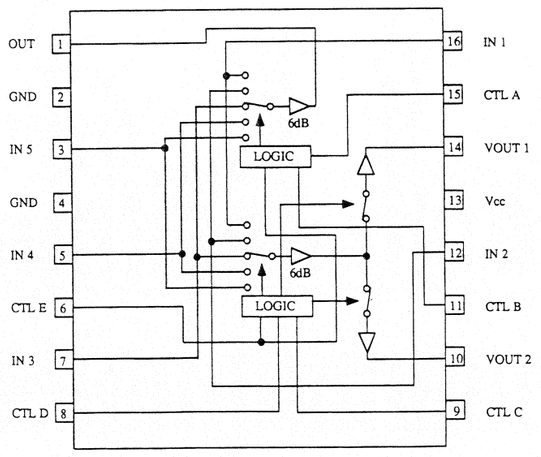
VIDEO CIRCUIT PC BOARD

PRINTED CIRCUIT BOARD - PARTS LIST

VIDEO CIRCUIT PC BOARD(NAETC-6111-4A/4B/4C)

CIRCUIT NO.	PART NO.	DESCRIPTION
	IC	
Q251	22240373	BA7625
	Transistors	
Q252-Q254	2213354 or	2SA933S-R or
Q257,Q258	2212125	2SA1048-GR
Q255	2212286 or	2SC2878-B or
	2212285	2SC2878-A
Q256	2213510 or	DTA114ES or
	2214350	RN2202
Q291	2213830	DTB113ZS
Q292	2213640	DTC123JS
	Diodes	
D251,D252	223205 or	1SS270A or
	223163	1SS133
D291	224471203	MTZ12C
	Oscillators	
	Capacitors	
C251,C252	354724719	470 μ F,6.3V,Elect.
C253,C255	354780229	2.2 μ F,50V,Elect.
C254	354724719	470 μ F,6.3V,Elect.
C256	354780229	2.2 μ F,50V,Elect.
C259	354721029	1000 μ F,6.3V,Elect.
	Terminals	
P251,P252	25045457 or	NPJ-3PDYE278 or
	25045299	NPJ-3PDYE158
	Plug	
JL242b	25055630	NPLG-9P592

BA7625(Video Selector Switch)



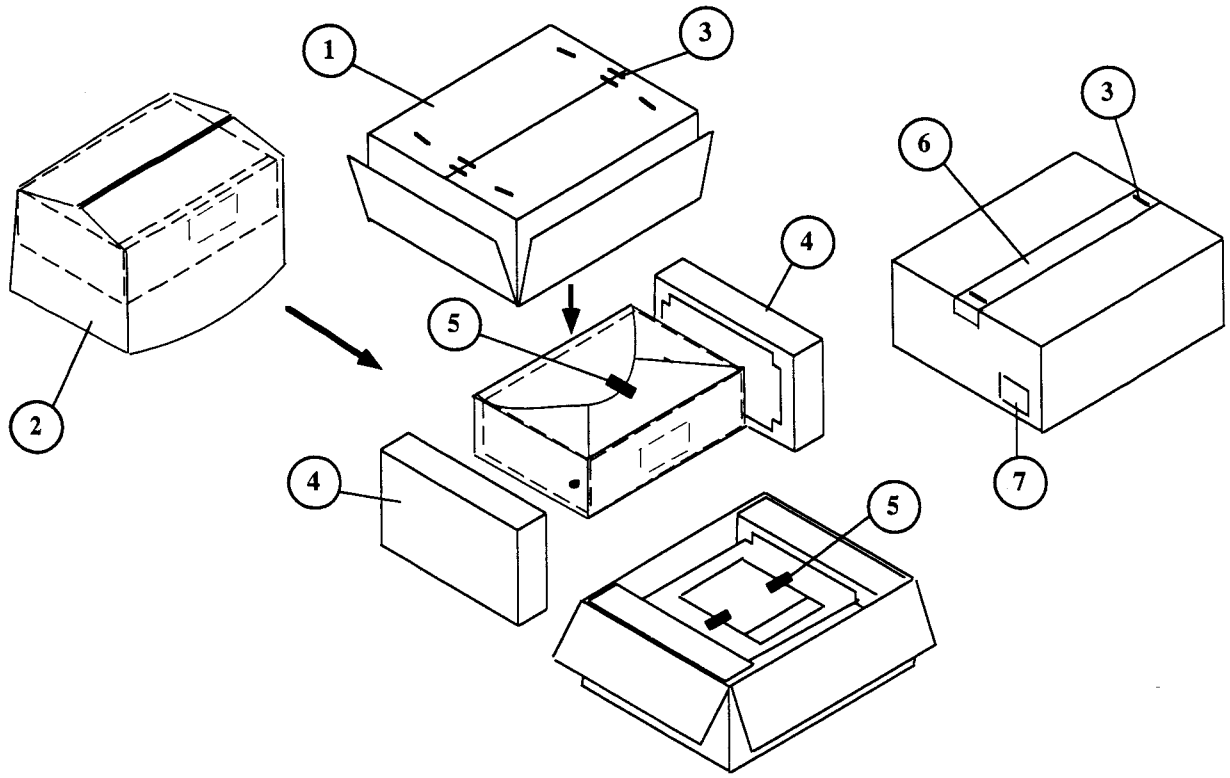
#15	#11	#6	#1
A	B	E	MONITOR OUT
L	L	X	IN1
H	L	X	IN2
L	H	X	IN3
H	H	L	IN4
H	H	H	IN5

X:Don't care

#9	#8	#6	#14
C	D	E	VOUT1
L	L	X	
H	L	X	IN2
L	H	X	IN3
H	H	L	IN4
H	H	H	IN5

#15	#11	#6	#10
A	B	E	VOUT 2
L	L	X	IN1
H	L	X	
L	H	X	IN3
H	H	L	IN4
H	H	H	IN5

PACKING VIEW



REF. NO.	PART NO.	DESCRIPTION
1	29053211	Carton <B>
	29053212	Carton <G>
2	29100034-1A	850*650,Poly bag
3	282301	Staple
4	29091796A	Pad
5	261504	Adhesive tape
6	29110071	PP tape
7	29362218	EAN label <B>
	29362219	EAN label <G>

REF. NO.	PART NO.	DESCRIPTION
	Accessary bag ass'y	
	232140	NMA-3057,Antenna coil
	24140345	RC-345S,Remote control
	25055018	CV-K-1,Conversion plug <W>
	25065462	YAE21-0237, FM antenna adaptor
	29100097-1A	350*250,Poly bag
	292112	FM antenna
	29342493A	Instruction manual E
	29342494	Instruction manual T <T/W>
	29361786	Label <T/W>
	29361869	Label <K>
	3010154	UM-3,Battery

NOTE:
<B>: Black model only
<G>: Golden model only
<T>: Asian model only
<W>: Wolrdwide model only
<K>: Korean model only